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ORIGINAL LECTURES.

CLINICAL ELECTRO-THERAPEUTICS: SOME PRACTICAL POINTS IN THE TREATMENT OF DISEASES BY THE VARIOUS MODES OF THE ELECTRICAL FORCE.

Being a Clinical Lecture delivered at the Jefferson Medical College Hospital.

BY ROBERTS BARTHOLOW, M.D., LL.D.,

PROFESSOR OF THERAPEUTICS AND MATERIA MEDICA IN THE COLLEGE.

GENTLEMEN: It is my purpose to-day to utilize some of the cases we now have here, and which have also happened under my observation elsewhere, to set forth some practical points in respect to the uses of electricity as a remedy for certain morbid states. I am the more inclined to the discussion of this subject, because, as must be evident to every observant physician, an "electrical revival" is now in progress. Whilst we should not be inattentive to such professional movements, we should guard against that illogical enthusiasm which takes no note of objections, but hurries on to one-sided conclusions. My position is that electricity is a most admirable remedy when used in appropriate conditions, and that its utility has the same kind of limitations as those which belong to any other therapeutical agent. The actual value of electricity is still a *vexata questio*. In the medical profession, as in the other spheres of human thought and action, there are always two opposing parties—the optimists and the pessimists, the orthodox believers and the nihilists. The former accept everything unhesitatingly; the latter deny everything and ask for proofs, but they do not apply the Socratic method further, for, when the proofs are forthcoming, they continue to deny. A position of mere negation settles nothing. The Scriptural injunction to try all things and hold fast to that which is good, is the true position for us to assume.

One of the most significant facts of the electrical revival is the use of galvanism to remove inflammatory deposits so situated as to be within the immediate influence of the poles. The terms "catalytic" and "cataphoric" are now used to explain this action, but it must be confessed the notions associated with them are rather hazy. There seems to be an impression amongst the new advocates of the use of galvanism to cause the disappearance of exudates, that this phrase, catalytic, is new, and hence that the conception embodied in it is also new. This is an error, for if anyone will take the trouble to look over the work of Dr. Robert Remak, of Berlin—the apostle of the modern galvanic dispensation—he will find not only the word "catalytic," but, for the most part, a very true conception of the nature of the action.

We have here various cases that illustrate the utility of galvanism, and I have had many in my private practice. Amongst those seen here are cases of recent deposits about the joints the result of rheumatic inflammation, cases of exudations about enlarged and inflamed lymphatic glands, and a case, in especial, in which subacute pleuritis with extensive exudation set up changes in the lungs characteristic of that form of phthisis. I must call your attention to this example of the success of electrical treatment. This young man, the son of one of the College janitors, is now employed here, and you see him every day. He is now in robust health and seems to have recovered, but when he was put on the electrical treatment he was thin, weak, had a severe cough, night-sweats, diarrhœa—indeed, all the symptoms of consumption, and the physical corresponded with the rational signs. Every day for a long time the intercostal spaces were acted on by a strength of current sufficient to cause contraction of the muscles. The diarrhœa was arrested by phosphate of sodium; his general condition slowly improved, the chest troubles subsided, and you see the result in the robust young man before you.

We have here during the winter, many cases of rheumatism, in which effusion about the joints, weakness of the member, and constant pain and soreness, remain after acute attacks. In such cases we get the best results by a combination of electrical methods; by the use of galvanism to the joints and to the cervical sympathetic faradization, of the weakened muscles, and also general faradization. We make the galvanic applications to the joints in two modes: by the polar, and by labile movements of the pole. You are doubtless aware that the fluid about the joint, in a state of rheumatic inflammation, is strongly acid in reaction. It is now supposed that the rheumatic trouble is due to the presence of a form of lactic acid; it is known that the gouty paroxysm is caused by uric acid and urate of soda deposits. Now for the explanation. According to the laws of electrolysis, or decomposition by electricity, the acids appear at the positive pole and the alkalies at the negative. It follows, therefore, that if the negative electrode be placed over the affected joint, the alkali—potassa and soda—will be diverted thither. Hence the utility of the negative pole kept in contact with the joint for a time (stabile application). There are, however, other elements in this therapeutical problem.

We know that a galvanic current can act on the vessels of a part, and improve its nutrition by increasing the blood supply. Please consider this point with care. Onimus affirms that a descending galvanic current causes increased action—the vermicular motion—of the vessels, and in this way promotes the circulation in a part. Now this is true to a certain extent, although not generally accepted. It is true of mild currents of five to ten, possibly, fifteen milliampères, but it ceases to be true when a strong current of thirty to sixty milliampères is passed. The strong current throws the vessels into a tetanic state, and thus produces an exsanguine condition of the part acted on. I have ascer-

tained this lately by careful comparative examinations, and can, therefore, announce it as a fact.

How apply this important fact to the treatment of a joint in which a rheumatic inflammation has occurred? The vessels are left in an enlarged and relaxed state; their contractility impaired. To relieve this condition mild descending labile applications are required. In other words, the positive pole or anode is placed above, over the course of the principal arterial vessels, whilst the cathode or negative pole is slowly brushed over the affected joint. In this way applied, a mild galvanic current (five to fifteen miliampères) restores the tonicity of the vessels and promotes absorption of effusions.

Besides the local applications intended to accomplish the purposes just indicated, it is useful to act on the cervical apparatus. The positive pole placed in the fossa behind the angle of the jaw, and the negative on the epigastrium, we bring within the circuit the sympathetic ganglia, the accelerator and inhibiting nerves of the heart. We frequently hear of adverse criticism of this procedure, which we also owe to the genius of Remak, but I believe those who criticise have not really considered the question properly. This mode of application brings into action the great central apparatus of the circulation, and the effect is to increase the tone of the vascular system throughout. By this method Meyer, of Berlin, asserts that he has caused the disappearance of rheumatic nodosities of joints. Although optimist as I am said to be, I cannot quite accept such a statement.

Beside the galvanic treatment in the cases of rheumatic joints, it is our custom to faradize the muscles that have been weakened and wasted by the persistent rheumatic inflammation and by the consequent disuse of the limb. Just that strength of current required to cause muscular action is the strength used; but, as you have observed, we do not act on the muscles until the joint troubles have subsided.

Now, gentlemen, I wish to put before you some very striking facts showing the power of the galvanic current to effect the removal of inflammatory exudations. I refer to the results of pelvic inflammations in women. As I am not a gynecologist I do not see the large number of cases of pelvic inflammations that occur to the specialists, but it does happen me, comparatively often, to have patients suffering with nervous conditions in large part the outcome of such local diseases, and partly also of the means used to combat them. For the last three years current medical literature in this country, and especially in Germany, has contained many papers with illustrative cases showing that by the persistent use of galvanism exudations in the pelvic cavity, chronic metritis, uterine fibroids, and subinvolution of the womb are cured. Whilst the treatment is going on a simultaneous improvement in the general condition of these patients is also noted, and nervous phenomena of considerable severity disappear.

You will wish to know, of course, how to proceed in the electrical treatment of these cases. I need hardly observe that galvanism is used, and that the strength of the current, and the position of the electrodes are determined by the morbid conditions to be removed. To pass from the simple to the complex I refer first to the cases of subinvolution of the uterus, that state of the organ sometimes succeeding to delivery, in which from various causes involution does not take place, the womb remains voluminous, its vessels dilated and atonic, its mucous membrane the seat of a catarrh. When in this condition, partly because of its great weight, and partly because of the state of its annexed and associated organs, the uterus is apt to become misplaced. Obviously here, two objects are to be accomplished: to induce firmer contractions of the muscular tissue; and to restore the tone of the vascular apparatus. One electrode—the negative—is introduced into the vagina in contact with the uterus; the other—the positive—is put on the abdomen. The vaginal electrode should be perfectly insulated up to the metallic button or cylinder in which it terminates. If currents of great intensity are to be used, the metallic terminal of the electrode should be covered with absorbent cotton well moistened. The external electrode should be a large, well-moistened sponge. The negative is the vaginal electrode, because at this the alkalies appear, and it is therefore less irritating and at the same time more resolvent in its action. When the intention is merely to act on the organic muscular fibres sufficiently to increase the contractile action of the uterine elements and the vermicular movement of the vessels, a mild current—five to fifteen milliampères—suffices; but if on the other hand decided electrolytic effects are desired, and congestion is to be removed, much stronger currents are required—thirty to forty milliampères. I have already stated this, but the facts are important enough to warrant their repetition. In the condition of subinvolution the stronger currents are needed to remove the congestion.

In the cases of chronic metritis, of pelvic exudations, and of fibroids, our purpose is to increase the nutritive activities of the diseased parts, and this we effect by persistent and uniform applications of currents of moderate intensity.

In this connection, gentlemen, I must not fail to call your attention to a very important application of electrolysis. I refer to the electrolytic treatment of urethral stricture—a point of practice which we owe chiefly to Dr. Robert Newman, of New York. My own experience has been rather slender, and hence I must avail myself of the experience of others. This method has evoked much unfriendly criticism. Practical surgeons are, as a rule, intolerant of those procedures which seek to cure surgical maladies on other lines than regularly orthodox principles. In some instances discredit has fallen on the method by the failure of physicians who attempted to cure stricture of the urethra by electricity, without a suitable equipment of apparatus, and of knowledge of the essential details. In a brochure lately published, Dr. Newman has exhibited the cause of the failures in a series of extracts from the letters of correspondents. If I had not frequently received such letters, I should have found it difficult to credit the existence of such impossible ignorance. What can be expected of a man who attempts the electrolytic treatment of stricture, with an old magneto-electric machine turned by a crank, the urethral electrode being a *rubber catheter!* And yet it is such self-satisfied ignorance that we find criticising electrical methods, and saying, with an air of judicial severity, "I have tried electricity, there is nothing in it." Truly there is nothing in it to such incompetents.

Attention to certain details is necessary to success. One

of the small portable batteries, zinc-carbon, of twenty elements, suffices. The urethral electrode must be an insulated sound with an ovoid bulb of metal, and having a short rather than a large curve, A current of three to five milliampères, Dr. Newman says, is strong enough, but when the patient is not impressionable, five to ten may be used. The rules I have already formulated, based on physiological data, indicate that in such a condition, the weaker rather than the stronger current must be employed. The applications must not be made often, especially not if any irritation be produced, for absorption can go on no faster than the natural powers can effect it. As to the results, Dr. Newman states that failures are the exception, and in the past year many cases have been reported confirming this view. My own experience, very limited, it is true, has been favorable, and I was informed the other day by Dr. Wolff of a highly successful case treated by him. It must be a bold and uncompromising pessimist, indeed, who can deny in the face of all this evidence.

A case of sciatica, which we have been treating here to-day, reminds me that galvanism is one of the most precious remedies we have in that affection. Of course, we do not cure all cases, any more than we accomplish the same impossible task with any other single remedy. Cases of sciatica may be arranged in several groups, and our remedies must be selected accordingly. The largest group contains those cases caused by some diathesis—the rheumatic, the syphilitic, the plumbic, etc.; the next consists of those produced by some sudden and considerable exhaustion of the nervous system, as sexual excess in the newly married; and the third group is made up of all the conditions inducing neuritis, especially mechanical injury to the nerve. These several causes of the nerve-pain must be removed, if a complete and permanent success is to be obtained.

But I will not stray off into these subjects: my purpose is to say something of the electrical treatment. I wish to emphasize the fact that for severe and protracted cases of sciatica the strongest current that can be borne is the most effective. This is a truth not generally appreciated at its real importance. Indeed, I supposed myself to be almost the only one who really had a true conception of it, but about two years ago, Dr. Gibney, of New York, published a paper advocating the same doctrine. The severest example of sciatica that has ever come into my hands, was cured in two weeks by a current strength which caused intense burning pain, and could be endured but a few minutes at a time. The patient himself, who could only get about by the aid of crutches, soon saw how much more relief was to be obtained by the strongest applications that he could endure, and hence he bore, without protest, a degree of burning that otherwise he would hardly have been willing to experience. The cases of sciatica due to recent neuritis, as yet involving no actual changes of structure, need also sufficiently strong applications to cause contractions of the vessels of the parts in a state of congestion. The electrodes should be thoroughly moistened, the metal disks or carbons well covered, and labile applications made, and also stabile, the latter predominating. Old cases, in which exudations have occurred in and about the nerve, and trophic changes, consisting in more or less wasting of the limb, and in which lesions of sensibility and motility have also taken place, are best treated by the milder stabile applications long continued, both as to the duration of each *séance*, and as to the time occupied in the whole treatment.

I must also insist on another fact, that longer individual applications are required than those now enjoined on the operator. Sessions of five, ten, and fifteen minutes are usually recommended, when much better results would be obtained from them if twice or three times as long. The care with which the shorter sittings are prescribed, seems to be intended for the benefit of the doctor, by saving time, rather than the improvement of the patient's malady. A little reflection will make the truth of this clear. It can hardly be doubted that when a decided change in the nutritive condition of parts long the seat of inflammatory deposits is to be made, there must be considerable time required. The resistance to be overcome to reach the seat of disease, the modifications to be made in the dynamical and physical condition of exudations, and the process of absorption and excretion after the materials are prepared for it, all need a certain space of time and a certain amount of power to accomplish. Now, power also needs time for its development.

This reminds me that it has been suggested to obviate the resistance opposed by the tissues overlying the affected nerve, by introducing more or less deeply as may be necessary, acupuncture needles, insulated up to near their points. Besides the pain caused by inserting the needles, very considerable burning pain is excited by the current. I have made use of this plan a few times, but I do not find that it has any advantages over simple acupuncture. So much pain is induced by the current that I have not succeeded in using more than three milliampères.

A case of infantile paralysis, so-called, present here to-day, and of which we have many examples from time to time, induces me to make some observations on the use of electricity in this affection, which is so interesting from the point of view of the electrician. A proper diagnosis of this malady cannot be made without the aid of galvanism and faradism. Do not misapprehend me by supposing that I mean no diagnosis can be made—only that an entirely correct diagnosis is not possible without the use of certain electrical appliances. That you have seen here from time to time, as in the cases now under treatment before you. The therapeutical diagnosis must be made before we can use the remedy intelligently. I mean by that, we must ascertain the condition of the paralyzed muscles as to their response to galvanic and faradic excitation, before we can decide on the form of electricity to be employed. If, now, I apply a faradic current to the paralyzed muscles of this child, and get no contractions, and yet, when I send a mild galvanic current through them, there are brisk contractions, I conclude that the muscles are in the condition known as "reaction of degeneration." It is the peculiarity of some cases of paralysis, in which the lesion is in the anterior cornua of the spinal cord, that with the loss of power there occur wasting of the muscles, and in these we find the reaction of degeneration most characteristic. In these cases, also, the good effects of electricity are most conspicuous, but before promising how much to accomplish, be very sure that you have correctly ascertained the real state of the paralyzed parts.

When a child, having one or several members paralyzed in consequence of an anterior poliomyelitis, is brought to you for treatment, you may promise much if the muscles react to the faradic current, however feebly; but be reserved when they react only to the galvanic, and be responsible for nothing when neither current causes the least movement. If, however, the muscles are much wasted, and only galvanism moves them, but the joints are intact and no contractures or deformities have been brought about, you may speak hopefully of the results of persistent electrical treatment. If the muscles yet react to faradic stimulation, that is the current to use, but only strong enough to give the muscles some motion, and thus exercise them gently for fifteen minutes every day. Do not make the mistake of those electrical enthusiasts who use the current so vigorously as to tire the muscles. Furthermore, the character of the interrupter with which your machine is fitted is an important element in the success of the faradic treatment. You observe that the faradic instruments in use here have an arrangement that permits slow or rapid interruptions. The machines of Flemming and of the Galvano-faradic Company of New York, are the only ones that I know of which have a satisfactory interrupting hammer. When arranged to run slowly, you observe at each break in the circuit there is a distinct muscular contraction followed by an interval of complete relaxation. The Neef's hammer arrangement vibrates so rapidly that the muscle is tetanized for the time being, and hence is more quickly fatigued, because the contraction is not a physiological one.

Beside the local treatment of the paralyzed muscles, it is very necessary to act on the spinal cord, the real seat of the lesions. As the condition of the cells of the anterior cornua is one of impaired nutrition, the descending stabile current—not too strong, from ten to twenty milliampères—is that which brings about the best results. The positive pole should be placed over the cervical vertebra, the negative on the sacrum, the sponges well moistened and kept in position (stabile), and the current made to pass for ten to fifteen minutes.

You are no doubt aware, gentlemen, that a similar disease to that called infantile paralysis, occurs, also, in adults, but it is not often encountered here, and at present we have no example of it. We do have, however, cases of neuritis which resemble in respect to their merely objective symptoms those paralyses due to disease of the multipolar ganglion cells of the anterior cornua. The reason for this similarity is found in the fact that when motor-nerve bundles are changed by an inflammation, the muscles innervated by them undergo the alterations of structure manifested by the "reactions of degeneration." Late experiences have proved that neuritis is a common cause of certain sensory and motor disorders—cramp, paralyses, neuralgia, and anæsthesia. One of the practical experiences of the new developments regarding neuritis, is the curative effect of rightly applied electrical treatment. As I have just had something to say on this topic, there is no need to occupy further time with it, the more especially as I wish to make some practical observations on a nervous state very common in these days, called by the general public "nervous prostration," and by the medical profession *neurasthenia*. Having had no inconsiderable experience with this malady, I have formed some opinions in regard to its therapeutical management which I wish to put before you so far as the electrical part of it is concerned. I may, however, so far diverge from this, as to give a definition of neurasthenia as a basis for the treatment.

From my point of view neurasthenia consists essentially in an exaggerated susceptibility to bodily impressions and false reasoning thereon.

I will not stop to explain or defend this view. Some of the reasons for it may appear during the course of the exposition of the electrical treatment; but for the present I have merely to speak of the kind of electrical applications most effective. Since the advent of statical electricity, that mode of the force has occupied the first place in the estimation of the French school of neurologists; but in Germany the various forms of electrical baths have got to be the fashion in the treatment of neurasthenia. It is quite apparent, indeed, that the best results have been obtained from those forms of electrical treatment most complicated and imposing, or, in other words, that most appeal to the wonder-sense of the patient. It might be assumed from this that any treatment will be successful if it make a sufficiently profound impression on the morbid consciousness of the patient. Not so. Although the "faith cure," the "mind cure," and other similar psychical agencies have had some successes, they have not been so numerous and unequivocal as to justify the belief in their individual sufficiency. That such an influence will change the mental state from one of depressed self-esteem and of illusions of sense perceptions to one of hope in which everything seems possible, is surely a clear indication of the mode in which the electrical applications help to bring about a normal state.

The two methods of electrical treatment best adapted to cure neurasthenia and allied states are general faradization and central galvanization, and they should be used in alternation; but the former is applied for a longer time than the latter. General faradization, first proposed by the late Dr. Beard, of New York, consists in applying the electric brush excited by a moderate current of faradism to the whole surface of the body. One electrode—a moistened sponge—can be placed on the neck, and the other electrode, holding a wire brush, is passed over every part of the body, or the feet may rest on a metallic plate covered with felt, or be placed in a vessel of warm salt solution. Beard's method has not been popular in this country, partly because of prejudice against the author of it, and partly because regarded as unscientific. The criticisms have not been just. In Germany Beard's method has been practised by some of the most eminent neurologists, who have not failed, also, to point out that general faradization and the dipolar electric bath are almost identical. In the latter, however, the current reaches all parts of the body in nearly the same moment of time, and this constitutes the only difference. It is doubtful whether this be an advantage.

In using general faradization only such a current strength is advisable as affects the sensations agreeably. One of the real objects of the method is to change the morbid perceptions of peripheral impressions. It is not wise to effect this by an action of a painful kind. Daily *séances* of fifteen to twenty minutes are best.

Central galvanization, which we also owe to Beard,

consists in the application of the electrodes so as to bring within the circuit the cervical sympathetic, the pneumogastric, the phrenic, the cervical portion of the cord with its bundles of nerves, and the dorsal portion of the cord with its connecting nerves. The first step consists, as you often see here, in applying the positive pole to the fossa behind the angle of the jaw, and the negative to the epigastrium. The negative continuing in the same position, the positive pole is next moved to the nape of the neck, where it is permitted to remain for a time, and afterward moved down the spine to a point opposite the negative electrode. By this manœuvre, it is supposed that the great solar plexus is acted on as well as the parts already mentioned.

Within the past few years, it has been quite the fashion, I know, to decry Remak's method called "galvanization of the sympathetic;" and the claims put forth by this great electrician and his followers may not be tenable, but it will be hard to convince any practical electrician familiar with the effects of this procedure that it is not a distinctly useful practice. I may make the same remark respecting Beard's central galvanization. It may not consist in excitation of the parts I have named as brought within the circuit, but it is an effective means of accomplishing certain objects, and of these especially the increase in the vital activity of the great organs of vegetative life. In cases of neurasthenia this central galvanization is the more necessary, in that in most cases the first morbid sensations of the patient, which awaken that illusory self-consciousness that plays so important a part in this nervous state, have their origin in the abdominal organs.

The effects of central galvanization are well shown in exophthalmic goitre. This malady is a functional derangement of the cervical sympathetic, and, in consequence, the action of the heart is greatly increased, the vessels of the neck and head much dilated, the thyroid gland enlarged, and the eyes protruding. When a stabile galvanic current is passed through the sympathetic ganglia of the neck under these circumstances, the pulsations of the heart are lessened in number, the vessels contract, the thyroid shrinks, and the eyes become less prominent. It is true when the current ceases to pass, the effects disappear in large part, but if the applications be continued, finally the functional derangement disappears, and the normal condition is resumed again. As I have in various instances witnessed, exophthalmic goitre is curable by galvanism alone. Now, if the results which we can see take place under galvanic stimulation, is there any reason to discredit those which are said to be produced in neurasthenia by central galvanization? I hope you have distinctly realized the principle which governs the practice under these circumstances.

Let me repeat it with emphasis. When our object is to secure contraction of the vessels, we use strong galvanic currents occasionally interrupted; when we desire to improve the activity of the circulation, and promote nutrition, we use milder currents and stabile applications of sufficient duration. The latter is the method required in neurasthenia, for the most part; the former in exophthalmic goitre.

Many other tempting subjects are suggested by the cases in attendance, but my time having now expired, I must defer the consideration of them to another day.

ORIGINAL ARTICLES.

A SUCCESSFUL NEPHROLITHOTOMY.

BY SAMUEL W. GROSS, A.M., M.D., LL.D.,

PROFESSOR OF THE PRINCIPLES OF SURGERY AND CLINICAL SURGERY IN THE JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA.

JOHN R., a coal miner, æt. thirty-three, was admitted into the Jefferson Medical College Hospital on October 1, 1885, having been sent to me for an operation by Dr. D. T. Jones, of Plymouth, Pa., who had diagnosticated the existence of a stone in the left kidney. Repeated examinations of the urine, made by Dr. Jones during the preceding two months, disclosed a small quantity of albumen, a few tube casts, numerous mucous casts, crystals of oxalate of lime, and a few pus and red blood corpuscles. The patient, during the entire period of Dr. Jones's attendance, suffered from malarial fever, accompanied by vomiting, which induced intense pain in the left loin, and after which the urine was smoky. During the past two months he has lost twenty-three pounds, which he attributes to the chills and fever.

Palpation of the loin and abdomen failed to detect any fulness or hardness, and forcible pressure was unattended with tenderness. There had never been an attack of renal colic, and the urine was passed, on an average, only three times during the twenty-four hours. Daily examinations of the urine during the interval which elapsed from the date of his admission to that of the operation disclosed that the fluid was acid, of sp. gr. 1.022–1.024, and that it contained a trace of albumen, some red blood disks, strings of mucus, epithelium similar to that lining the pelvis of the kidney, and an abundance of crystals of oxalate of lime, with some fragments of the same nature.

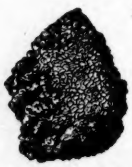
Until four years ago the patient had enjoyed good health, when he was seized with a dull, heavy pain in the left loin, which extended toward the median line of the abdomen, between the umbilicus and the pubes. This pain remained constant for two years, was relieved by recumbency, but set in again as soon as he got on his feet; and was occasionally sharp, and felt about the crest of the ilium. During the past two years it was not experienced daily. Throughout the entire time the pain was greatly increased by work, by rapid exercise, by railway travel, and by coughing, and on the day following such exacerbations he passed bloody urine once or twice. On one occasion, five months ago, after an attempt to work, he had an attack of retention of bloody urine, which was occasioned by five clots, each of which was about an inch long, and of the diameter of a large straw. Since the date of the appearance of the first symptoms he has been incapacitated from earning his living, every effort at work being followed by a paroxysm of severe suffering and hæmaturia.

Although frequency of micturition was conspicuous by its absence, and there was no swelling or tumor of the loin, nor tenderness on rough manipulation, nor renal colic, the almost constant pains, which were greatly aggravated by motion,

and the acts of vomiting and coughing, and the hæmaturia, along with the presence of strings of mucus, epithelial cells similar to those lining the pelvis of the kidney, and crystals and fragments of oxalate of lime, left little room for doubt as to the existence of an oxalate of lime calculus in the renal pelvis.

On October 13th, the patient having been placed under the influence of ether, and resting on his right side with a pillow under the abdomen and loin, an incision, four inches and a half long, and beginning at the edge of the erector spinæ muscle, was made parallel with the last rib, and three-quarters of an inch below it, and carried through the successive layers of muscles and aponeuroses, until the perirenal fatty tissue was reached. During this stage of the procedure two arteries in the latissimus dorsi and internal oblique muscles were secured with catgut ligatures. The circumrenal fat having next been torn through with forceps, the index finger, passed over the posterior surface of the kidney, came in contact with a hard substance at the site of the central infundibulum of the organ, which, on the insertion of a long needle, proved to be a stone. The overlying renal tissue was then scratched through with the finger-nail, and extraction attempted with a small lithotomy forceps. This failing, the anterior wall of the belly having been pressed backward by an assistant, the object was accomplished by the combined use of the finger and scoop, and the slight hemorrhage was arrested by pressure with a sponge wrung out of hot water. A drainage tube, with a lumen of nearly five-sixteenths of an inch in diameter, having been inserted close up to the opening in the kidney, the edges of the lumbar aponeurosis were approximated with buried catgut sutures, the divided muscles were united with two tiers of the same material, the deep fascia was secured with a single row, and the skin and superficial fascia were brought together with the continued silk suture. The objects in thus uniting the divided tissues were to facilitate rapid healing and guard against the occurrence of hernia of the descending colon. The outer dressings consisted of gauze and jute, secured in position by a broad roller. The strictest antiseptic precautions were observed throughout, the materials used for the sutures, ligatures, and dressings having been prepared with the usual solution of corrosive sublimate, and the instruments having been thoroughly scrubbed and soaked in a three per cent. solution of carbolic acid.

The stone weighed fifty-eight grains, was composed of oxalate of lime, and, as is shown in the



woodcut, was heart-shaped, rough on its exterior, and seven-eighths of an inch long, six-eighths of an inch broad, and a quarter of an inch thick. The kidney appeared to be perfectly normal in size, contour, and consistence, and there was not the slightest evidence that it contained pus.

For the first twenty-four hours the patient suffered from pain and slight shock. The pulse was 120, the temperature 98°, and he vomited frequently during the night. These symptoms were allayed by the hypodermatic use of atropia and morphia, and iced dry champagne. The catheter drew off twenty-seven ounces of clear urine. At the expiration of thirty hours the dressings were changed, when they were slightly stained by bloody urine. At this time the urine passed by the patient was tinged with blood, and it continued to be of this nature for twenty-four hours.

From this time until his discharge the patient did admirably. On the fourth, thirtieth, and thirty-eighth days, he suffered from chills, during which the temperature ran up to 103°, but which readily yielded to thirty grain suppositories of quinine. For the first two weeks the daily quantity of urine passed by the urethra varied between eighteen and thirty ounces; during the third week between twenty-nine and forty-seven ounces; during the fourth week between fifty-four and seventy-five ounces; and after this period, on several occasions, considerable quantities of urine passed from the sinus, when there was a corresponding diminution in the quantity passed by the urethra.

The entire wound, with the exception of the point of emergence of the drainage tube, healed by the first intention, and the continued suture was removed on the twelfth day. The dressings were changed as often as occasion demanded. The drainage tube was shortened and replaced by others of smaller calibre from time to time, but it was not finally dispensed with until November 29th, when the patient left his bed. The sinus had closed on December 5th. The man was sent home on December 9th. He had gained much in flesh, was perfectly free from suffering, and in every respect comfortable.

Remarks.—The case now narrated is another illustration of the debt which surgery owes to Mr. Henry Morris, who was the first, in 1880, to remove a stone from the otherwise healthy kidney, that is to say, a kidney not distended by pus or urine. By an early resort to nephrolithotomy the functions of the kidney are not only preserved, but suppurative destruction of the organ is prevented. The procedure is, moreover, comparatively safe, more successful, indeed, than lateral lithotomy in the adult. Thus, of 34 cases of which I have a record, 3, or 8.8 per cent., perished, 1 from the effects of morphia, 1 from blocking of the opposite ureter by a calculus, and 1 from pyæmia. If these results be compared with those following the removal of a stone from a disorganized kidney, the contrast will be seen to be most striking, since, of 33 cases of nephrotomy for calculous pyelitis or pyonephrosis, which I have collated, not less than 11, or 33 per cent., died.

In the majority of examples of nephrolithotomy the stone was small. In four instances, however, it weighed respectively four hundred and seventy-three grains, five hundred and fifty-six grains, two ounces, and two ounces and a quarter; and it is noteworthy

that these cases recovered. The most remarkable case on record is that of Clement Lucas, in which, on account of suppression of urine for one hundred and two hours, a calculus was removed from the left kidney of a patient whose right kidney had been extirpated, three months and a half previously, on account of calculous hydronephrosis. This case shows that there is little fear of the operation seriously interfering with the secretion of the urine; and, taken in connection with the fatal case from blocking of the opposite ureter by a concretion, it demonstrates that the trouble was symmetrical in 2 of the 34 examples in which the operation has been performed. It may also be mentioned that all of the recoveries were perfect, except the first case of Morris, in which a sinus persisted five years subsequently.

Under no circumstances should an otherwise healthy kidney be extirpated on account of a stone. The symptoms of renal calculus being present, the organ should be cut down upon and explored with the finger and needle, and by incision, if the other methods fail to detect it. Such a procedure has thus far proved to be perfectly safe, as is shown by 29 cases in which a stone was not found, and which I have collated. All recovered, and in four the organ was cut into. Hence, of 63 examples of attempted or accomplished nephrolithotomy, only 3, or 4.76 per cent., perished, a measure of success which is seldom attained in any other capital operation.

NOTES ON THREE CASES OF TROPICAL BERI-BERI, AND ON SOME ANALOGOUS INDIGENOUS CASES OF MULTIPLE NEURITIS.[1]

BY E. C. SEGUIN, M.D.,
OF NEW YORK.

HAVING been courteously invited to participate in this evening's symposium on neuritis, I bring my mite of contribution in the shape of the relation of three cases of beri-beri, which, coming from tropical parts, have been under my care. That this disease is rarely seen in our latitudes, though very common in South and Central America and in the islands of the Gulf, I infer from the fact that it has not, to my knowledge, been discussed in medical societies or in private relations in New York during the past ten or fifteen years.

My apology for relating the following cases is that they well illustrate the prominence of neural symptoms in beri-beri, and that they justify the opinion expressed by a number of observers (Dr. B. Scheube and others) that beri-beri, or kak-ke, as the affection is called in Japan, is essentially a multiple, poly- or pan-neuritis, occurring as an endemic infectious (?) disease in many countries of the globe in both hemispheres. That beri-beri, or kak-ke, is nothing more than a multiple neuritis I am not prepared to say, and, indeed, my experience is so extremely limited that I can only use my cases to illustrate the probable neural origin of many of the symptoms of the disease.

In looking for notes of cases of multiple neuritis occurring in my local practice I found several. One, very typical, was recorded under the title of alcoholic polyneuritis; others were included in my essays on poliomyelitis anterior,[1] as examples of that disease. These three cases were marked by the ordinary symptoms of multiple neuritis—numbness, and partial anæsthesia, irregularly distributed atrophic paralysis, with degenerative reactions; and, besides, by œdema of the extremities. I was struck by the resemblance of these cases, thus symptomatized, to mild cases of the mixed form of beri-beri. There is quite a resemblance, if not a similarity, between Cases I. and II. of the category of beri-beri and Case I. of the category of indigenous neuritis.

Another aspect in which a study of beri-beri is of interest to us, is that the disease may take root and acquire considerable development in the United States. It appears that the affection has prevailed in Para, Brazil, for only a few years, perhaps only since 1878, having been brought there from Southern Brazil and Paraguay; and, as it is not uncommon in Cuba (at least the so-called wet form), it may very well show itself in the Gulf States.

With this brief preface, I pass on to the cases themselves.

FIRST CATEGORY: CASES OF BERI-BERI.

CASE I.—A Cuban lawyer, aged twenty-six, consulted me September 9, 1885, with letters from Drs. Landeta and Desvernines, of Havana, of which the following is an abstract: Married man of good constitution. Never had syphilis, scrofula, or paludism: never seriously ill. In summer and autumn of 1884, dyspeptic symptoms.

Symptoms of present illness: (1) Early in November (1884) pains in lower third of both legs. (2) In a few days these parts were slightly œdematous, while the malleoli and feet remained free from swelling. (3) Simultaneously, cardiac palpitations; rapid pulse, from 110 to 120. (4) Some muscular weakness was noticed in legs; walk difficult and done on tip-toe, or on fo ward part of foot. (6) Toward end of November the pulse was steadily 120 or more beats; large objective palpitations and souffles were noticed over cardiac area. (7) Œdema appeared in the face, invaded the whole of the legs, thighs, feet, and genitals. (8) The muscles of the thighs and legs became soft and painful to touch; there seemed to be intramuscular œdema. Toward the end of the month patient was unable to leave the bed; the palpitation was intense, and there was great dyspnœa. The thenar and hypothenar eminences became soft; the patient could no longer write, or use fork, spoon, etc. Later the weakness became such that the legs could not be lifted from the bed: face was nearly twice its normal size. The patellar reflex was abolished. Some muscles showed loss of contractility under electricity (*vide infra*).

As a summary of symptoms in the fourth and fifth weeks of the disease, it may be said that there

[1] Read by invitation before the Philadelphia Neurological Sociey, November 22, 1886.

[1] Myelitis of the Anterior Horns; or, Spinal Paralysis of the Adult and Child. New York, 1877. (Private edition, 1874.)

were anasarca, paralysis with electrical changes in certain muscular groups, cardiac bruits, with pulse up to 140 beats per minute, dyspnœa. At no time was there fever, and no albumen or sugar was ever found in urine.

Under the use of infusion of digitalis, cinchona, and nutritious food, these symptoms abated, and there was decided improvement by the end of December (eighth week). Under electrical treatment and sulphur baths the motor paralysis gradually passed off, and the patient was able to stand in March: steady improvement thereafter continued, the cardiac symptoms had about ceased by the end of December.

Dr. Desvernine's letter refers more particularly to the state of the heart, and to the electrical reactions. At the height of the disease the heart was enlarged, more especially the left ventricle, and the murmur heard was a mitral regurgitant one. These signs were due, Dr. Desvernines believes, to myocardial lesions; the endocardium being unaffected. This view is borne out by the disappearance of the symptoms.

There was an apparent pseudo-hypertrophy of all muscles of the body (œdema). A piece of muscle removed by Duchenne's trocar showed simple atrophy of its muscular fibrillæ with intramuscular œdema and proliferation of the connective tissue. The electrical reactions were not taken during the acute period of the disease, but afterward were very fully studied, and there were found with both currents the "reactions of degeneration characteristic of perverted nutrition in nerve and muscle."

The diagnosis made by Drs. Landeta and Desvernines was beri-beri or kak-ke, of the mixed form, and Dr. Desvernines recognized in the case the grounds for the views advanced by Scheube and Balz (from studies of the disease in Japan), that it is essentially a multiple neuritis. It is interesting to add that, while the wet form (anæmic œdematous type) is well known to the physicians of Cuba and Havana, not one of several who saw this case with Dr. Landeta had seen an example of the mixed form.

When I examined Señor M. about ten months after the beginning of the attack, he presented no objective symptoms except a degree of abnormal flushing of the face. Excepting a slight quantitative reduction in contractility of the calf muscles, I noticed no abnormality in the faradic and galvanic reactions of nerve, trunk, and muscles. The pulse was slow, from 57 to 63, and the heart normal in size and sound. The patient complained of occasional vertigo, and want of power of mental concentration. He was well about October 10th.

CASE II.—Mr. J. G., a married man, thirty-eight years of age, a native and resident of Panama, was brought to me, for consultation, by Dr. Pio Rengifo, of New York, on November 17, 1885. Is a tall, strongly built man, who has enjoyed good health, except that sixteen years ago he had a single chancre with suppurating buboes, but no secondary symptoms. Had a year's treatment with Dupuytren's pills and iodide of potassium. A healthy child has been the result of marriage. In the past eight years occasional palpitations, supposed to be due to gastric disorder. Is temperate in use of stimulants. About two months ago noticed numbness in toes and fingers. This has continued as a constant symptom, affecting tips of fingers, toes, and forward part of soles; on lying down, however, there has been a certain sense of numbness in the legs and forearms. Pains appeared later, of two kinds: first, aching pains in the calves, which were hard and tender; second, sharp pains in spots in fingers, legs, and feet; not, however, repeated pains in spots, with cutaneous hyperalgesia (not fulgurating pains). Knees were weak, and toes seemed cramped. Had sensation of band around toes. Had no vesical paresis, loss of sexual power, or spinal pains; no abnormal reflexes in legs, no diplopia. In last three weeks distinct œdema of feet and legs; has noticed that the calves measure two or three centimetres more in the evening than in the morning. During the past fortnight there has been marked improvement in power of legs, and in the paræsthesiæ.

Examination.—No objective symptoms about eyes or face. Grasp: right side, 38 and 32 degrees; left, 31 and 22 degrees; decidedly weak for a man of patient's muscular development and size. Sensibility is not positively diminished in fingers, but there is some confusion in estimating number of points applied; distinguishes texture of cloths well. No analgesia. Fingers are skilful; handwriting unchanged.

Lower extremities: no patellar reflex; walks a little awkwardly, with slapping of the feet; but, strictly speaking, there is no ataxia. Staggers when standing with eyes closed and feet together, but with eyes open stands fairly well, even on one foot. Sensibility to æsthesiometer is dull, but he localizes impressions well; no analgesia. Those movements of toes which are controlled by interossei are limited. There is yet a trace of œdema over the tibiæ. No electrical examination.

I concurred in Dr. Rengifo's diagnosis of beriberi or multiple neuritis, and the same opinion was expressed by Professor Charcot, who saw Mr. G. shortly after. I recently learned that entire recovery took place in a few months. It may be of interest to add that Mr. G. presesented complete transposition of the viscera, his heart (the sounds of which were normal) being distinctly on the right of the sternum, and his liver on the left side; he was, however, right-handed originally.

CASE III.—Señor J., aged fifty, a native and resident of Para, in Brazil, was referred to me by my friend, Dr. Charles E. Simmons, on November 11th, and is now under observation. Former health good; never had beri-beri or severe malarial fever. Subject to "bilious attacks." In August of present year had bleeding hemorrhoids for three weeks, followed by weakness of legs. This was soon followed by tingling, numbness, and pains in the legs, and lastly by œdema, not affecting feet. By advice of physicians, Mr. J. sailed from Para, October 27th, but instead of immediately improving, he grew worse. Soon noticed numbness and awkwardness of hands; the weakness and œdema of legs increased. In the last six days the long extensors and the long flexors of

the right thumb have shown paresis, and in the last four days the same muscles on the left side have been affected. No dypsnœa, vertigo, or mental symptoms. No fever observed; urine high colored. The pains were never severe.

Examination.—Stout, well-built man; complexion pale, muddy, and tanned. No motor or sensory symptoms in eyes or face. Heart normal; no effusion in pleura. Upper extremities: all voluntary movements present except extension and flexion of phalanges of both thumbs; the two long extensors on both sides are completely paralyzed, and the long flexors partially so. The thumbs hang as do fingers in certain cases of lead paralysis. The left extensor indicis is weak. The abductor pollicis longus, and the small hand muscles are normal on both sides. Opposition well done. Supinators strong. No ataxia. Grasp: right and left, each 25 degrees on dynamometer. Sensibility is normal to æsthesiometer on finger-tips; but, by pricking, a limited area of analgesia (incomplete) is found over the left metacarpus, in the ulnar territory. Temperature well perceived. Lower extremities: the walk is somewhat feeble, but not pathological in type; can stand upon his toes, and equilibrium with eyes open or closed is nearly perfect. No ataxia. Patellar reflex subnormal on both sides. Both legs present a soft œdema in their inferior half; the calves are large but flabby. No swelling distal of ankle-joints. All voluntary movements of legs, feet, and toes can be performed; though extension and flexion of toes are done feebly. The great toes are not as much affected as are the thumbs. Sensibility is slightly dull to touch (a numb feeling) as high as the umbilicus; but the only zone of actual analgesia is on outer (fibular) side of left leg in its lower third. Temperature well perceived. Urine is dense, deposits urates; without albumen; a few small hyaline casts. Summary of electrical examination: Arms, no faradic or galvanic nerve reaction in extensor primi et secundi internodii pollicis on either side. These muscles do not respond to faradism, while galvanism yields a slow contraction, with marked tendency to tetanus: CaCC=AnCC or CaCC<AnCC. In flexor longus pollicis (both sides) there is no nerve reaction, and only a faint oscillatory C, with a strong faradic current applied directly to muscle. Galvanism gives a slow contraction: CaCC=AnCC, and the latter tending to tetanus. The long extensors of fingers on both sides yield reduced faradic contractility, and rather sluggish galvanic contraction, through CaCC>AnCC. Legs: Quantitative reduction to faradism and galvanism in calves: CaCC =AnCC. Extensor longus pollicis and extensor longus digit. have almost no faradic contractility, and to galvanism yield slow C, with CaCC=AnCC, the latter almost tetanic. Through external popliteal nerve better contractions (both by faradism and galvanism) are obtained in these muscles. Tibialis anticus and small muscles of feet, normal reactions. In other words, we have in this case a well-marked DeR, limited to the nervo-muscular apparatus of both thumbs; partial DeR in long extensors of fingers, and in extensors (and flexors) of toes.

SECOND CATEGORY: ANALOGOUS INDIGENOUS CASES.

CASE I.—Mrs. X., aged forty years, seen in consultation with Dr. Carreau, of New York, in November, 1885. There is a clear history of excessive drinking and sexual indulgence for many years. Patient is still drinking brandy steadily. For more than two years has suffered from gastric catarrh and failing memory. Early in past summer felt burning sensations in feet, pains in feet and legs; occasional numbness in feet and hands. At end of July marked increase in gastric symptoms, diffused swelling of hands and feet, with prickling, numbness, and a hyperalgesic state of same parts. Was unable to walk. No arthritis. Hands have also been weak. No bladder symptoms. Pains have ceased, but hands and feet are in state of painful formication; dreads to be touched. There is frequent vomiting of food and mucus. Partial dementia, with a few delusions. Urine examined several times; no sign of renal disease. *Examination:* Tongue tremulous and foul. No motor or sensory symptoms in eyes and face. The grasp is feeble, but long extensors and flexors all act. Opposition of thumb is impossible: marked atrophy of radial side of thenar eminences. Examination shows marked reduction in tactile sensibility in tips of all fingers. The hands are œdematous, with dorsum tense. No arthritis. Lower extremities examined seated: feet puffy and tense, but not red; no arthritis. All movements of feet and toes are possible, though feebly done. State of sensibility cannot be well studied, owing to patient's absurd fear of all instruments and manipulations. This also prevents any electrical tests. Patellar reflex abolished (?). Spine not tender. Diagnosis: alcoholic multiple neuritis. Treatment by reduction of brandy, injections of strychnia, galvanism, and message begun. Carlsbad sprudelsalz for gastric catarrh. A note received from Dr. Carreau, a few days ago, states that faradism did not produce contraction at first, and galvanism was used alone until March, when both currents were employed. In March began to walk, and has steadily improved. Now well, except feebleness of memory, and some numbness.

It is interesting to consider that this and other alcoholic cases bear a certain etiological relation to tropical beri-beri. In both cases we have subjects living upon a relative or actual excess of carbonaceous food, alcohol or rice, as predisposing, if not efficient causes of neuritis.

The two following cases were published in my essay on "Myelitis of the Anterior Horns" (1874 and 1877) as examples of that affection. Reading them in the light of recent advances in nerve pathology, they now appear to have been cases of multiple neuritis, with dropsical symptoms, making them strongly resemble beri-beri or kak-ke. I give them merely in epitome, referring to the original for details.

CASE II. (Case XVIII. of essay).—Male, aged forty years, seen in January, 1874. In September severe "cold," with bronchitis, temporary suppression of urine, swelling of face and feet, lasting

three to four weeks. Some stiffness and subjective coldness in feet. Relieved by strychnia. October 16th, feet heavy and cold, hands awkward and fingers numb. Increasing loss of power in legs. Physician stated positively that neither this nor the former attack was due to Bright's disease. In November marked anæsthesia and nearly complete paralysis of both legs; thigh muscles remained active; no rectal or vesical symptoms. Median distribution in both hands, anæsthetic; the hands and forearms rapidly wasted. No bedsore or cincture feeling. No cerebral symptoms. Improvement from end of December, when movement appeared in toes.

When examined by me he presented an atrophic paralysis of both hands, with partial anæsthesia (mostly tactile) of finger-ends. Toes (except great toes), feet, and legs, can be pretty well moved in bed; legs much atrophied, especially in anterior tibial group of muscles. Feet are partly anæsthetic, but present (as do the legs) marked hyperalgesia. No faradic reaction can be had in both extensor pollicis, and only feeble contraction in thenar eminences. These muscles contract well, however, to galvanism (DeR). Complete recovery occurred by end of summer.

CASE III. (Case XIX. of essay).—Male, aged forty-seven years, seen in March, 1884. Large, healthy man. Severe "cold" in October, 1883, with bronchitis, slowly followed by numbness and paresis of limbs. The numbness appeared at about the same time in the ends of the upper and lower extremities. November 10th, walking was possible only with the assistance of a stick or a person, but he could still dress himself. Swelling of the feet, with glossy skin, was marked; by November 14th, subjective coldness of feet. A few days later was unable to sit up in bed; much formication up to the knees, and halfway up the forearms; some anæsthesia (?) of the feet. No head or eye symptoms; bladder and rectum normal. In the middle of January, 1884, intense formication ushered in recovery; gradual improvement in power of legs and hands. Feet remained a little swollen. Some wasting of legs. In January noticed numbness in distribution of left superior maxillary nerve on face. Can now walk with help of cane and crutch.

Examination.—No facial symptoms. Movements of arms and hands good, except that extension of the right fingers is incomplete, and is very feeble on left side, especially for the thumb and index-finger. Palmar muscles emaciated, but not atrophied. Sensibility good. Grasp: right, 26 degrees; left, 16 degrees. Coordinates well. In lower extremities the only paralysis is below the knees. The left foot is but slightly movable; the right, a little more. Toes are somewhat contracted in flexion. Sensibility to contact is good down to ankle, dull below that, very dull in toes. Toes are numb. No œdema of feet or legs. Urine is dense, but free from any signs of renal disease. Electrical examination shows very great loss of faradic contractility in palsied muscles, almost complete in left extensor indicis, and in extensors of toes and flexors of feet (anterior tibial groups); feeble reaction in calves. All these muscles, however, react well to galvanism (DeR).

These three indigenous cases of multiple neuritis—one clearly of alcoholic origin, the others of unknown etiology—I submit with but little comment. They were characterized by a combination of paræsthesiæ and anæsthesia, by paralysis with atrophy and DeR, of irregular peripheral distribution, and by œdema of the extremities, without signs of renal disease. Bronchitis occurred a short time before the nervous symptoms appeared in the two non-alcoholic cases. Cardiac and respiratory symptoms, indicating neuritis of the vagi and the phrenic nerves, were the only ones wanting to produce a symptom-group almost exactly like that of severe beri-beri or kak-ke.

Consult B. Scheube, Die Japanische Kak-ke (beriberi), *Deutsches Archiv für klin. Medicin*, xxi. p. 141; xxii. p. 83 (1882–83).

SOME POINTS IN MINOR SURGERY AT THE PENNSYLVANIA HOSPITAL.

BY THOMAS S. K. MORTON, M.D.,
SENIOR RESIDENT SURGEON.

SHOCK is combated usually by warmth and stimulants. The former is applied by means of hot baths or water bags, generally the latter. The patient is surrounded by rubber bags filled with hot water. These we have had made for the purpose. They are round, from one and a half to two and a half feet long, from four to six inches in diameter, and have a filling-hole with a screw cap at one end, and a handle at the other. Atropia is freely used. Whiskey, ether, digitalis, aromatic spirits of ammonia, or, in desperate cases, aqua ammonia itself, are given. The injection of pure ammonia is, of course, always followed by local sloughing. Mustard, hot fomentations, large enemas, and drinks of warm fluids do good service. Previously warmed blankets are a great comfort as well as of benefit.

Ether is our standard anæsthetic, although the A.-C.-E. mixture is often employed; chloroform very seldom. A small amount of the latter is found useful to relax the muscular spasm which often remains in drunkards, even when ether is fully pushed. A few drops will often permanently stop it, when the ether can be continued. A.-C.-E. has given rise to no alarming symptoms in at least two hundred administrations from my hands, and I know of no untoward circumstance attending its use here. All general anæsthetics are administered from small, square-folded, very absorbent towels. Cone or apparatus are not used. The "rapid" and rectal methods have long since been abandoned as dangerous. The patent ink-bottle stopper is found convenient to pour ether from the bottle.

During the local anæsthetic action of cocaine, we have performed many minor amputations, circumcisions, and other small operations; but with us, at least, the field of the drug in this direction is becoming quite limited. Most eye operations, however, are performed under its influence.

Divided or torn muscles, tendons, and nerves, if their ends can be seen, are sutured with catgut. If not visible, they are freely cut for, and likewise

sutured. Good function is the almost invariable result.

Subcutaneous operations, such as tenotomy, aspiration, and even exploration by needle, are performed with as much antiseptic precaution as if a large wound were made, for death has been known to occur from wound complication following each of these procedures. Therefore, knowing that there is *some* risk, no matter how trivial, it becomes one's duty to avoid it.

In the amputation of fingers and toes below the metacarpo- or tarso-phalangeal joints, rubber umbrella rings are used as tourniquets. The flaps are closely stitched, and, if there be any bleeding when the ring is taken off, a deep lateral stitch back of the line of incision on one or both sides will always effectually control it. We never put a ligature upon these arteries, finding the above method amply secure, and, so far as our last few hundred such amputations show, unattended with disadvantage.

In exarticulations at the metarcarpo or tarso-phalangeal joints ligatures are applied if possible, but if the bleeding is obstinate, a deep stitch into the palm or sole can be made to control the appropriate vessel. These operations receive the usual house dressing and a palmar splint. They are, as a rule, not dressed for from ten days to two weeks, when solid and complete union is expected and usually found.

Catgut sutures are passed through finger- and toe-nails, without fear, if by so doing crushed or cut parts can better be brought into shape, and also in operations for ingrowing nails.

We have saved many fingers, ears, and noses, which came in hanging by mere shreds of tissue, by promptly sewing them in place, and treating antiseptically. No opportunity has occurred by which to test the saving of those parts when entirely severed from the body.

Abrasions and brush burns are carefully cleansed and treated with either boracic acid ointment, or the standard house dressing.

The latter consists of: protective; Lister gauze, wrung out of 1:1000 $HgCl_2$ solution, and its skin surface thickly dusted with iodoform; a pad of dry 1:1000 cotton, and moist 1:1000 gauze bandages over all. We have found that Lister's boracic acid ointment makes up better if wax be substituted for the paraffine of his formula. Our receipt is: boracic acid and yellow wax, each 1 part, cosmoline 4 parts.

Ligatures are never applied except in the largest operative and accidental wounds.

Sutures run under or through the bleeding points effectually control them. No trouble is experienced in tying catgut sutures or ligatures, when the first tie of the knot is made as for a surgeon's knot. Catgut is invariably used for these purposes. In treating some hundreds of scalp wounds, no matter how extensive, I have never applied a ligature, always finding that carefully placed sutures will stop all hemorrhage.

Stitches are placed very close together in all wounds; this presupposes proper drainage if it is necessary. If so, it is secured by a few strands of finest catgut, placed along the bottom, and brought out at one end of the wound.

Small or superficial wounds as rarely require drainage as ligature. Scalp wounds are not drained unless extensive. If the edges are much contused or torn, they are excised. Quite small wounds of the scalp or elsewhere, and sometimes larger ones, are, after antiseptic closure, covered in with a minute pad of bichloride cotton, and plastered down with either pure collodion or combinations of it with such drugs as evaporated tincture of benzoine (evap. fl. ʒij tr. benz. comp. to fl. ʒij, and make to fl. ʒij with collodion), iodoform (10 per cent.), salicylic acid, etc. Wounds too small for stitches are similarly treated. Large wounds, of course, receive the house dressing and possibly drainage.

Very tense hematomata are freely incised, the clot or fluid blood curetted out, any bleeding vessel stitched or tied if it can easily be found, and the whole sewn up with or without a drain, according to size, and dressed with some compression.

Slowly resolving hematomata or those in which suppuration is present or incipient, are manipulated in exactly the same way.

Punctured wounds are laid open, curetted, washed with 1:1000 $HgCl_2$ solution, and closed as above. If the bottom cannot be reached, a small drain should be carried as deep as possible, and the best hoped for.

Gunshot wounds are treated in much the same manner. If it can readily be done, the ball is extracted through the wound or by counter-opening. The entrance and exit (if there be one) wounds are excised, the track of the ball curetted thoroughly, a small gut drain carried all the way through, and the external wounds treated as simple incised ones.

Compound fractures, if the skin wound is small, are freely cut into, washed with 1:1000, curetted, accurately stitched, and, if extensive, drained with catgut.

Some of them are dressed more frequently than the actual wounds require in order that good position of the bones may be secured.

Wounds of joints are treated in precisely the same manner, save that, unless they are dirty, we are satisfied with thorough washing with 1:1000, and omit the curette. Cure in one dressing is here attempted and good function expected.

Poisoned wounds are also treated somewhat similarly, but the utmost care is taken to get to the bottom of the wound itself and into all ramifications and sinuses with the curette and strong antiseptic solution (1:500). If the wound is very bad and cellulitis present or threatening, continuous antiseptic irrigation (1:2000) is started as soon as the cleaning out is effected.

Large glass percolating jars, with glass stop-cocks, or other regulating device, suspended over the part give best satisfaction. Whilst thus employing irrigation any wounds should be well covered with protective, the whole part covered with lint, and the solution allowed to drip upon it.

Suppurating wounds might be classed as poison wounds, for the treatment is almost the same,

namely: curette and antiseptic solution (1:1000 or 1:500), excision of wound edges and, usually, accurate approximation, with or without a drain as circumstances indicate.

Punctured, gunshot, suppurating, poison, and compound bone and joint wounds when thus dealt with, as a rule heal by primary intention and under but one dressing.

Felons, buboes, simple and suppurating cysts, inflamed bursæ, and large, small, and diffused eradicable abscesses are treated by exactly the same method and usually with like result.

Ineradicable abscesses, such as the psoas, are treated by this method as far as it can be made to go, and are then drained into an antiseptic dressing by means of a rubber drainage tube; through which they are from time to time washed out with antiseptic solution. Care must be taken in so doing, however, whether it be these or other cavities, not to let any of the solution remain in. It should be displaced by a weaker solution or distilled water.

In cutting into abscesses, old hematomata, etc., a better result is secured by opening them from one side through sound tissue.

Simple cellulitis is treated like the complicated form as described above.

Burns, if small in area, or confined to an extremity, are treated by the regular antiseptic dressing. All easily removed, dead skin, etc., is taken away; the parts washed with 1:1000 bichloride solution, or iodoform sprinkled on (in part for its analgesic effect), then protective in narrow strips, and the dressing and cotton. Anæsthesia may be required to do this properly.

Extensive burns are covered in with boracic acid or oxide of zinc ointment, the surface of which is sprinkled with iodoform and, if there is much pain, smeared thinly with oleate of morphia. This dressing is covered in with cotton batting and a bandage or binder.

Just here it may be well to speak of sloughs, granulations, and skin-grafting, but what is said applies to all wounds as well as burns.

Under the antiseptic dressing sloughs are very slowly thrown off. It is our custom to excise them as soon as they become demarked. If properly done this causes scarcely any pain or bleeding and places the wound days, and, perhaps, weeks nearer closure. By picking up the edge of the slough with a pair of forceps, and cutting with knife or scissors through its readily apparent junction with healthy tissue, it is easily accomplished. By this same process I have successfully, and without pain or hemorrhage, amputated even fingers and toes which we had attempted to save.

All forms of exuberant granulations are usually shaved off with a sharp knife. The moist bichloride dressing, applied without the intervention of protective, is found to produce ample stimulation, if such is indicated.

If skin-grafting becomes necessary, a patch of thin skin is selected and made aseptic, as is also the granulating surface, if it is not so already. Almost microscopic pieces of the cleansed skin are then cut out by means of a purified needle and a pair of scissors, and planted among the granulations. Narrow strips of protective are applied, and upon this is placed either the "house-dressing," or simply a pad of dry 1:1000 cotton. Any bichloride solution remaining about the parts should be washed off with distilled water before the grafts are cut and set, and strong solutions should not be used while the islets of epithelium are forming.

Leg ulcers, when small, are stimulated, if necessary, by scoring with a sharp knife, nitrate of silver stick, etc.; dusted with iodoform; accurately fitted with a piece of protective, and a gauze dressing put on with a firm roller. If they are large, and have callous edges, these latter are trimmed off, the sore curetted, perhaps straps applied after the iodoform and protective, and then the same dressing. By this method they can always be kept perfectly sweet and clean; the discharge is but slight, and the pain still less. If the ulcers are very irritable, and will not bear the gauze dressing, boracic acid ointment is substituted for it.

Those painful, non-ulcerative conditions of the legs so often met with behave excellently under one or the other of the above dressings.

In such regions where it is impossible to apply or retain a regular dressing, great pains are taken in the cleansing before and after an operation, and iodoform in conjunction with frequent corrosive sublimate irrigations is freely used afterward. Especially are these applications valuable about the genito-urinary organs and rectum. In females, after most operations thereabouts, the vagina is washed with 1:1000, and then *filled* with iodoform. Beyond an occasional irrigation of the external parts, nothing more need be done until the stitches—if they have not been of catgut—are ready for removal.

Chancroids heal wonderfully if kept buried in iodoform; sometimes they are previously brushed over with acid nitrate of mercury, etc. No treatment is directed to hard chancres unless complicated.

Body parasites are destroyed with 1:500 corrosive sublimate solution. No unpleasant effects have been known to follow even the freest use of the solution in this way. If the ear has been invaded, it is syringed with that solution, and then filled with oleate of morphia and a little wad of cotton put on top.

A CASE OF BACKWARD DISLOCATION OF THE FOOT WITHOUT FRACTURE.

BY WILLIAM G. DAGGETT, M.D.,
OF NEW HAVEN, CONN.

CASES of backward dislocation of the foot occurring without fracture of the tibia or fibula are of such extreme rarity that the following brief report is offered with the view of placing on record one which came under my care a few days ago.

J. D., aged fourteen, while wrestling with a schoolmate, fell in such a manner that his foot became fixed, and the weight of his opponent, who fell on top of him, was spent on the leg above the ankle. The resulting injury was a backward dislocation of the astragalus, together with the rest of the foot.

The dislocation was easily reduced. Repeated careful examinations by Dr. Francis Bacon and myself disclosed no fracture of tibia or fibula. There was no unusual injury to the soft parts.

22 COLLEGE ST., NEW HAVEN, CONN.
November 6, 1886.

HOSPITAL NOTES.

THE TREATMENT OF RHEUMATISM IN THE BOSTON HOSPITALS.

MASSACHUSETTS GENERAL HOSPITAL.

DR. FRANCIS MINOT usually employs in the treatment of acute articular rheumatism, ten grains of salicylic acid or fifteen grains of sodium salicycate, for an adult, every hour, or every two hours, until the pain and fever abate; after that, at longer intervals according to circumstances. If there be indications of endo- or pericardial complications, sinapisms are applied, followed by fomentations, and quinine is given in two grain doses, three or four times daily. In cases of suspected cerebral inflammation ice is applied to the head, with opium, chloral hydrate, aconite, etc., internally. The affected joints are simply wrapped in cotton wadding. Purging is avoided.

The diet during the acute stage consists chiefly of milk and farinaceous articles. Wine and other stimulants are ordered according to the degree of prostration. The patients are kept in bed at least a week after all pain and swelling have subsided, and the temperature and pulse have fallen to the normal standards.

In the more chronic forms of articular rheumatism, reliance is chiefly placed on quinine and iron. In all cases care is taken during convalescence to prevent fatigue, exposure to cold, and errors in diet.

DR. F. C. SHATTUCK uses a combination of the salicyl and alkaline treatment, with a view to—first, relief of the articular pain and swelling; and, second, the prevention of cardiac complications, the results of which are far more serious than are those of the inflammation about and in the joints. He finds that under the use of the salicyl compounds the joint pains and the fever yield more promptly and fully than under any other medication. Relapses, are, however common; and it would seem that, though the patient is made much more comfortable, his stay in the hospital is but little if at all shortened. There are good authorities who maintain that this treatment tends directly to lessen the liability to cardiac complications; there are other equally good and more numerous authorities who maintain that it has no such direct action. That the full alkaline treatment has some effect in averting and curing these complications, rests on evidence strong enough to make us listen to it; and the stay in hospital under its use is, if the statistics quoted by Professor Howard in Pepper's *System of Medicine* are reliable, rather shorter than under the salicyl compounds.

MEDICAL PROGRESS.

SPARTEIN SULPHATE AS A MEDICAMENT.—The following statements are based upon results obtained in the clinic of NOTHNAGEL. In cases of deficient heart activity, whether in valvular disease or emphysema, pleuritis and icterus, the drug was given in powder in doses of one milligramme, easily taken. Syphygmograms showed the effects produced.

(1) In very small doses the heart's contraction was strengthened, the pulse was fuller and stronger, the arterial tension increased, the frequency slightly diminished.

(2) These effects followed from three-quarters of an hour to an hour after administration, endured often longer than twenty-four hours, and were increased by repetition of the dose. An intermission of several days is useful, after which the drug acts more powerfully; it may be given daily for more than a week without injury.

(3) Impaired rhythm at first noticed is in a few cases only again observed; in seven heart lesions the ventricular action is much improved, but not made that of health.

(4) Respiration at first becomes more frequent, is then slightly less frequent.

(5) Diuresis, as would follow increased heart action, is increased.

(6) A mild narcotic effect of the drug is often noticed, generally resulting in rest and sleep.

(7) Symptoms of intoxication, giddiness, headache, heart palpitation, and nausea follow the use of small doses (1 to 4 milligrammes) very rarely, soon disappear, are slight in character, and are generally not observed on repeating the dose.

Spartein resembles digitalis. Its effect is, however, too sudden, and does not remain at its maximum sufficiently long to relieve severe disorders of compensation, while repeated doses of spartein do not result as efficiently as the use of digitalis. Its fixed dose and harmlessness will make it very useful; it seems more useful than caffeine, adonis vernalis, or convallaria.

It may be given in valvular lesions when compensation fails and the pulse lacks strength; also to regulate and strengthen a disordered heart action; also in insufficiency of the heart muscle without valvular lesion; also in pericarditis, as an aid in diuresis, and to supplement digitalis.—*Centralblatt für die gesammte Therapie*, October, 1886.

A CASE OF ACUTE ARTICULAR RHEUMATISM AND TYPHOID FEVER OCCURRING SIMULTANEOUSLY.—DRS. SPILLMAN and GANZINATTY report a case in a man aged thirty-six, and generally healthy. In reviewing the case they analyze it as follows:

1. Occurring simultaneously with a pseudo-rheumatism of typhoid nature and infectious, and in which the rheumatic element bears a secondary relationship to the typhoid infection, there can develop an association of acute articular rheumatism and typhoid fever.

2. The two diseases develop at the same time, the rheumatism preceding the typhoid fever, or following and outlasting it.

3. The rheumatic manifestations remain simply fluctuating; joint suppuration does not occur as in secondary and infectious joint swellings.

4. The rheumatic manifestations which are but little affected by sodium salicylate, yield to antipyrine, whose analgesic effect is, however, brief and intermittent.

5. The typhoid fever manifests its ordinary symptoms; its duration is the usual one, its fever curve is modified

by the rheumatic exacerbations, and by the administration of antipyrine.—*Revue de Médecine*, Oct. 10, 1886.

A PECULIAR FORM OF MOTOR DISTURBANCE OF THE PUPIL.—SALGÓ describes a peculiar form of pupil, which consists essentially of an irregular contraction of the muscular tissue of the iris, by which its pupillary margin assumes many different shapes. The pupil generally appears triangular or poliangular, with the corners thickened and rounded out, resembling somewhat the slit-like pupil of the cat, or the irregular appearance caused by synechia. This kind of pupil reacts in a normal manner, but after each movement assumes a somewhat different form, so that the contracted pupil appears different from the same when dilated.

The great majority of cases so far observed have been associated with general paralysis of the insane, though it has been seen in chronic, progressive psychoses in which no paralysis could be detected. The author considers that it is much the most frequent pupillary symptom in general paralysis, and regards it as an expression of the varying intensity of innervation from the cortex. —*Chicago Medical Journal and Examiner*, Dec. 1886.

THALLIN.—In a work on the effects of this drug, MARAGLIANO, of Genoa, says that

1. A single dose of one-tenth of a gramme results in a fall of temperature whose minimum is 0.7°, whose maximum is 2°.

2. A dose of one-fourth of a gramme will depress temperature 3.1°; one-half of a gramme brings temperature down 3.3°; three-fourths of a gramme causes 3.6°, and one gramme will depress temperature 4.7°.

3. The antipyretic effect begins commonly one hour after taking, and reaches its maximum after two hours, while the depression of temperature is only one degree for the first hour, and becomes greater after three or four hours.

4. The effect of a dose of one-tenth of a gramme persists from two to four hours; one-fourth of a gramme from two to nine hours; one-half of a gramme from two to ten hours.

5. The intensity of the effect varies with the same dose, and is effected by the following circumstances: *a*. The initial temperature; the higher this is, the greater the drug's action. *b*. The hour of the day, for which no rule can be given. *c*. Susceptibility of the patient.

6. Cumulative effects are produced by successive doses.

In comparing thallin and antipyrin, we find one-fourth of a gramme of thallin acting as powerfully as one gramme of antipyrin, with no appreciable difference in the continuance of the effect; to depress temperature for a given time, two or three times as much antipyrin as thallin must be given. Thallin is, therefore, bulk for bulk, the most powerful of antipyretics; it may be given in powder by the mouth, or hypodermatically, and results well in enemeta.—*Medicinisch Chirurgisches Centralblatt*, November 5, 1886.

THE CAUSATION AND CURE OF URIC ACID CALCULI. —PFEIFFER has made a series of experiments as to the effect of different mineral waters in dissolving uric acid. He differs from other experimenters in imitating the natural condition of things, by placing the calculi in the urine altered by drinking the various mineral waters. The urine of healthy people, using no minerals, had no uric acid solving property, but, on the contrary, rendered the uric acid masses heavier. Acting on this hint, he successfully produced calculi outside the body. The Kochbrunnen water (Wiesbaden), he found, had very slight dissolving properties; the Carlsbad was a far stronger solvent, but with this disadvantage, that after leaving off taking it the calculi increased with great rapidity. Lithium water, twenty times as strong as the strongest natural water, had very slight solvent powers. In powder, lithium had more effect, but the quantity required daily was far beyond that which could be taken of any natural lithium water, and the effect ceased as soon as the remedy was left off. But with the pure alkali waters of Fachingen the effect was quite different, the urine in this case acquiring very well-marked solvent properties, and these persisting for a considerable time after, without the use of the waters. Pfeiffer, therefore, recommends, for uric acid stones in kidney and bladder, the continued use of the Fachingen waters, for months or years, at the rate of one or two bottles per week. Lehmann (Oeynhausen) has remarked that the waters of Wildungen were also useful in dissolving calculi. Ziemssen (Wiesbaden) states that Wildungen owed its renown mainly to the successful lithotripsy of its surgeons.—*Manchester Medical Chronicle*, November, 1886.

A SUCCESSFUL HYSTERECTOMY.—A most extraordinary injury, done by violence to the genital apparatus of a woman, is described in the *Centralblatt für Gynäkologie* of November 13th. A woman was brought one morning to the hospital in Hamburg by the police, who had found her lying in the street insensible, her clothing covered with mud and stained with blood. An examination showed a fleshy tumor protruding from the vulva, which proved to be the uterus torn loose from all its attachments except at the anterior vaginal vault; there was also a tear involving the whole recto-vaginal septum and opening above into the peritoneal cavity. The total extirpation of the uterus was completed in the hospital, and, strange to say, the woman made a perfect recovery. The recto-vaginal tear was then repaired by a plastic operation which was also successful. The subsequent judicial investigation elicited the fact that the woman had been drinking heavily, till after midnight, with two male companions, who, following her on her way home, had cohabited with her, not without her consent; she herself being intoxicated could not tell clearly what had taken place, but it was apparent, from the nature of the injury, that one of these men, in a drunken frenzy, had introduced his whole hand into the rectum and, rupturing its anterior wall, had endeavored to drag out the uterus entire. The woman had remained lying in the street, in midwinter, until the following morning, and when found showed evidence of having lost a large quantity of blood. Her recovery, under the circumstances, was remarkable, and, taken in connection with the rarity of the injury, if indeed it is not unique, makes the report of the case very interesting.

THE MEANS OF PREVENTING THE DETERIORATION OF RUBBER APPARATUS.—An inquiry has been carried out under the direction of the French Minister of War with the object of ascertaining the cause and the remedy for

the peculiar changes which articles made of India-rubber undergo when kept in stock, the annual loss to the government from the deterioration of this class of goods being very considerable. Experience shows that India-rubber, after a time, loses the very qualities which make it useful, for it becomes dry and brittle. Articles kept in boxes, such as Higginson's syringes, Esmarch's bandages and drainage tubes, are particularly liable to deteriorate, as are also the insufflation bulbs so largely used in connection with spray-producing apparatus and thermo-cauteries. Unfortunately, the results of a long and patient investigation are not by any means satisfactory, so far as the discovery of a means of prevention is concerned. Nevertheless, certain precautions are advised, both in the quality and storage of India-rubber goods, which, it is hoped, will do something to minimize the loss. The commissioners advise, for instance, that Esmarch's bandages should be taken out of the boxes at least once a month, unrolled, and manipulated. Drainage tubes should be hung up in a cool place, or soaked in a non-putrescible fluid. Finally, all objects made of rubber should be kept in a cool, damp place, at a constant temperature, and sheltered from light, heat, and frost. Seeing that, in many cases, these conditions cannot be complied with, it is recommended that the bandages should be made of pure leaf rubber, in lieu of the elastic tissue usually employed. The purer the rubber the less readily does it undergo these structural alterations, and the lighter it weighs: its weight is, therefore, a sure guide to its quality. In consequence of these inquiries, the minister has ordered that in future all rubber articles are to be made with pure rubber of the best quality, preferably with the leaf rubber. The quality of the articles will be gauged by their specific gravity in order to insure the purity of the material employed.

MUSCULAR RHEUMATISM DUE TO THE USE OF TOBACCO.—DR. EDWARD ANDERSON, of Rockville, Md., writes as follows to the *Maryland Medical Journal*, November 27, 1886:

I have met with a great many cases of muscular rheumatism due to the use of tobacco in some form, mostly in the shape of snuff placed under the tongue. All remedies were unavailing whilst the use of the weed was indulged in. Every practitioner, I think, on meeting with a case of the above disorder should inquire as to the tobacco habit, and correct it, if possible.

INTERMITTENT ALBUMINURIA IN A CHILD.—DR. MAREAU observed the above-mentioned phenomenon in a healthy chi'd aged ten, whose father, a chemist, made most careful and patient analyses. The child had had croup, whooping-cough, bronchitis, typhoid fever, and measles, all very mildly, and had recovered to good health. It was before the last illness, and during its continuance, that albuminuria appeared. There was no history of scarlatina. The child, although physically and mentally impressionable, gave no evidence of Bright's disease except a slight malaise, and headache occasionally. 447 analyses were made before the patient contracted measles, and the result of these observations was—

1. The existence of an albuminuria of unknown nature, but compatible with health.

2. This albuminuria was intermittent, transitory, and rarely resulted in the loss of much albumen; it was greatest after a meal.

3. The slight albuminuria of early morning is doubtless caused by the meal of the night preceding. Measles neither increased nor diminished the albuminuria.

4. When the child was prevented by fever from eating, its greatest albuminuria was on waking; when enjoying full meals, it had albumen after meals.

5. Excepting the presence of albumen, chemical and microscopic examination revealed no abnormality.

6. Milk diet, absolutely and patiently enforced, lessened a considerable amount of albumen, but had no effect upon mere traces.—*Revue de Médecine*, October, 1886.

VALLEZ'S OINTMENT FOR HEMORRHOIDS:

Unguent. simpl.	16 parts.
Extract of elder	4 "
Burnt alum	2 "

Used by inunction every two hours.—*Revue de Thérapeutique*, November 15, 1886.

TREATMENT OF BLENORRHAGIC CYSTITIS.—DESNOS has arrived at the following conclusions after trying different modes of treatment:

1. Blenorrhagic cystitis attacks the neck of the bladder; it is always connected with an inflammation of the deep portion of the urethra, but such urethritis alone cannot give rise to all the symptoms of cystitis.

2. The frequent micturition which occurs in the beginning of blenorrhœa is of too short duration to be mistaken for a positive symptom of cystitis, especially in the absence of other symptoms.

3. In chronic cases the differential diagnosis between blenorrhagic and tuberculous cystitis is generally impossible when the former follows an old blenorrhœa.

4. A number of cases known as cystalgia, or neuralgia of the neck of the bladder, are simply partly cured cases of blenorrhagic cystitis; a painful sensation commonly persists in such cases.

5. The treatment of acute cystitis by emollients is generally fruitless; the injection of solution of nitrate of silver (one in fifty to one in ten) produces a sharp reaction at first but rapid improvement follows.

6. In chronic cases irrigation of the bladder is of little benefit and can excite fresh inflammation; general treatment is useful, but local treatment applied to the neck of the bladder is indispensable.

7. Bichloride of mercury solution, one in two hundred and fifty to one in five hundred, gives sharp and prolonged pain, and its beneficial effects are less prompt than those of nitrate of silver.

8. Iodoform in oil, or in suspension in glycerine is not painful; its effects, although good, are slow and uncertain.

9. Hydrochlorate of cocaine relieves pain in the bladder for a very short time; applied to the neck of the bladder just before the introduction of a caustic, it lessens greatly the painful effects of cauterization.

10. Nitrate of silver, in solutions of one fiftieth to one tenth, in injections of from ten drops to twenty-five or thirty, the author considers the most efficient, safe, and rapid means of treatment.—*Bulletin Général de Thérapeutique*, November 15, 1886.

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THE TREATMENT OF RHEUMATIC FEVER.

IN this and in the past two numbers of THE MEDICAL NEWS we have presented our readers with brief reports on the methods employed in the treatment of rheumatism in the chief hospitals of Philadelphia, New York, and Boston.

For a knowledge of the natural history of rheumatic fever uninfluenced by drugs we are indebted to the late Dr. Flint, who treated thirteen patients in Bellevue Hospital with infusion of quassia, and to Dr. Sutton, of London, who treated a large number of cases with mint water. The observations of the latter physician, in conjunction with Sir William Gull, deserve a more thoughtful consideration than has been afforded them by many clinicians, as they are of primary importance in enabling us to judge of the effect of medicines on the disease.

Since the introduction of salicylic acid in 1875, this remedy and its compounds have been universally employed in rheumatism, and about sufficient time has now elapsed to permit us to arrive at a safe judgment of its uses. On looking over the reports, we find that in some form or other it is still employed in every one of the hospitals represented, and we ask for no better guarantee of its merit than this one fact. As a rule, a decade plays sad havoc with a drug announced with the *éclat* which attended the introduction of salicylic acid, but the experience of many physicians the world over seems to have accorded it a safe place in the therapeutics of rheumatism. The early anticipations, however, that we had in it a specific have not been realized, and too rapid cures have been expected. The elaborate analysis by Palmer Howard in Pepper's *System of Medicine*, vol. ii., seems to indicate very surely that cases treated by this method do not get better any quicker than on the old alkaline plan; indeed, if statistics are worth anything, they show that the cases do not get well so soon. Cardiac complications are probably more frequent, though in the reports we have published Dr. Loomis alone suggests that the effects of the acid favor their occurrence. It is a very general opinion, also, that under the salicylate treatment relapses are more frequent. Unquestionably the most striking action of the drug is in the relief of the pain and the reduction of the temperature, so that the extreme suffering and the general misery of the patient are promptly relieved. Upon these manifestations of the disease it often acts "like a charm," and possibly relapses are in many cases brought on by careless exposure or errors in diet in patients whose acute symptoms have been rapidly removed while the *materies morbi*—whatever that may be—still remains in the system. A combination of the salicylates and alkalies has probably a more decided effect upon the disease than either remedy alone. Dr. Kinnicutt, as shown by the report from St. Luke's Hospital, New York, continues to have good results from the use of oil of wintergreen, which seems to act almost as promptly as salicylic acid, of which it is a methyl ether.

That rheumatic fever is essentially a self-limited disease, and is not materially influenced in its *duration* by drugs, is an opinion fully justified by a comparison of the reports of Sutton with those of the various writers who have published the results of the alkaline and salicylate plans of treatment. We have been too ready to mistake the relief of symptoms for the cure of the disease.

The reports do not refer very fully to the use of antipyrin in this disease, which is spoken of by recent German writers as a specific. It would seem, like the salicylates, to reduce the fever and to relieve the pain, and so far it may be specific, but we require further evidence to show that it really limits the course of the malady. Fränkel, in *Deutsche medicinische Wochenschrift*, Nos. 43 and 44, speaks very highly of its value in thirty-four cases, but acknowledges that in certain cases it cannot replace the salicylates.

INJECTION OF ETHER AND IODOFORM INTO COLD ABSCESSES.

THE use of iodoform has been of such marked advantage in the treatment of wounds that it is not surprising to find its employment extended to the treatment of lesions beneath the surface, such as cold abscesses. Of the vehicles which have been used, glycerine has certain disadvantages, on account of its density and the difficulty of bringing it into intimate contact with the whole

of the abscess wall. Ether has the great advantage of being an admirable solvent, and so fluid that it can penetrate where glycerine cannot. Besides this, it is believed that its vaporization by the heat of the body causes a further penetration and serves to convey the iodoform into the deepest recesses and most intricate sinuses.

The injection of iodoform dissolved in ether into cold abscesses was first brought prominently to the notice of surgeons by VERNEUIL, at the Congress of French Surgeons in 1885, and since then it has been used to a considerable extent, in France especially. Recently VERCHÈRE, in the *Révue de Chirurgie*, has called attention again to its advantages, and given an account of its use in twenty-three cases, including abscesses connected with disease of the bones of the thorax, pelvis, and spinal column, of the humerus, of the femur, of the elbow, and of the carpal bones, and abscesses in the neck, and in the temporal fossa. In all of these cases, except one, the treatment was followed by prompt improvement, and by more or less complete recovery. In one case death followed from causes unconnected with the treatment, and this furnished an opportunity to demonstrate how thoroughly the iodoform had been deposited upon the entire wall of the abscess.

It appears from the reports of Verchère that this method is of special value in the treatment of tubercular abscesses. The iodoform seems to have a specific action upon tubercular deposits, and may act constitutionally as well as locally, since there is abundant evidence that it is absorbed when injected into an abscess, and its internal administration appears to be beneficial in general tuberculosis.

The method of Verneuil consists in evacuating the whole or a part of the contents of an abscess by means of an aspirator—or of a hypodermatic syringe, if the abscess be very small—and in injecting through the same tube a suitable quantity of iodoform-ether. Two dangers accompany these injections: 1. That of too great distention from the expansion of the vaporized ether. 2. That of iodoform poisoning. Verchère saw a case in which the distention of an abscess in the front of the neck was so great that symptoms of suffocation, from compression of the trachea, appeared, and another in which the whole of the scalp was raised from the bone. In both of these cases prompt relief was afforded by introducing needles of hypodermatic syringes, which permitted the escape of the ether vapor. The danger of iodoform poisoning is to be avoided by using only moderate quantities of iodoform. Verchère considers a drachm to be the maximum quantity which can be used with safety. In large abscesses about one and a half fluid-ounces of a five per cent. solution may be injected; in small abscesses a ten per cent. solution, or even a saturated solution may be used. In the case of very small abscesses with thick contents, Verchère employs the following ingenious method. He introduces the needle of a hypodermatic syringe into one part of the abscess and leaves it in place, while at another point he evacuates the abscess through an aspirator and closes the aperture with collodion and gauze; when this is done, he injects the ether through the hypodermatic needle.

It is important, where it is possible, to prevent the escape of the ether vapor after the injection, and this is accomplished by closing the opening with collodion and gauze, as stated above. As the iodoform remains a long time in an abscess cavity before it is wholly absorbed, the injections should be repeated, if necessary, only after a considerable interval; Verchère advises once a month in cases of large abscesses in which the skin does not give way, until a cure is effected. This may require six or more months. When the skin does give way after the injection, the sac is eliminated as a sort of slough, and the cure is more rapid. The observation of this fact leads Verchère to suggest opening the sac as part of the treatment.

One of the greatest merits of this method consists in the fact that the patients do not have to go to bed, and can continue their usual occupations.

The results obtained by Verneuil and by Verchère are so brilliant that their example may well be followed in the treatment of tuberculous or glandular abscesses. It may be that a still better medicament may be discovered for injection into abscess cavities. Carbolic acid and corrosive sublimate have been used, but they are far from safe, and they are certainly no more efficient than iodoform. Iodine may be used in abscesses of moderate size, and, if diluted, in large abscesses. In the former, pure tincture of iodine is an admirable agent, and nothing could surpass the results obtainable by its injection into small cysts and broken-down gummata, or into the sloughing tissue of felons and palmar abscesses. The action of iodoform is probably due to the gradual release of iodine, and it may be that the use of iodine itself would secure a more prompt action of the remedy. How much of the success of Verneuil's method depends upon the action of the ether it would be hard to say. As ether, it must act upon the tissues, and the great distention which follows its vaporization reminds one of the method of hyperdistention suggested, and very successfully employed for a time, by the late Mr. Callender.

It should be stated that Mickulicz was the first to call attention, in 1881, to the good effects of iodoform in tuberculous abscess, he having employed it in connection with glycerine. In 1884 Fränkel reported twenty cases from Billroth's clinic, of which all save two were complete cures, and fifteen of

which were dependent upon diseased bone. We regret to say that neither Verneuil nor Verchère makes the slightest allusion to the experiences of those surgeons to whom the credit of using iodoform in cold abscesses is justly due.

INTRAUTERINE DISINFECTION.

ALTHOUGH the whole medical world has reason to thank Koch for the announcement of his discovery, in 1881, that a solution of bichloride of mercury, of the strength of 1 : 1000, was absolutely fatal to the hardiest forms of microbes and their spores, and while this antiseptic agent has given brilliant evidence of its efficiency in obstetrics, it has not, unfortunately, shown itself to be the ideal disinfectant, fatal to the infecting parasites, but innocuous to their host. It is now clearly proven that the danger of fatal poisoning after the use upon absorbent surfaces of a solution of the strength already mentioned is by no means slight.

Having employed it extensively, and seeing no bad consequences, CARL BRAUN, of Vienna, recommends that a solution of thymol, also 1 : 1000, be substituted for corrosive sublimate in intrauterine injections, not only directly after delivery, when the danger of absorption and poisoning is, of course, greatest, but also later in the puerperium in those cases in which there is decomposition of retained fragments of the placenta, or membranes. In such cases the uterine walls are scraped with a curette, the thymol solution is injected, and a bougie of iodoform is inserted into the cervical canal, this plan of treatment giving the most excellent results.

THE EQUINE ORIGIN OF TETANUS.

IT is somewhat remarkable that so able a man as Verneuil has recently accepted one dubious theory—that of Pasteur in regard to hydrophobia—and has proposed another—that of the so-called equine origin of tetanus. This latter was first announced in the *Gazette Hebdomadaire de Médecine*, in 1886, and Verneuil has repeated it before the Congress of French Surgeons. The principal grounds upon which it rests are the assertions that: 1. Tetanus often occurs in men who have been in contact with horses. 2. Tetanus is most frequently caused by injuries received from horses. 3. Horsedealers, stablemen, and grooms are more liable than other men to tetanus. And 4. Wounds which have come in contact with earth contaminated with the excreta of horses are more frequently followed by tetanus than any others.

Verneuil's theory received the approval of a number of the French surgeons present at the Congress, and was not seriously opposed by any of them. This approval accords well with the reception which Pasteur's theory of hydrophobia received at the Paris Academy of Medicine, and, like that, indicates that patriotism rather than reason may sometimes rule in French councils. Of the theory of Pasteur we have already expressed an unfavorable opinion which is gaining more and more adherents as time passes. Of Verneuil's theory we are compelled to express an equally unfavorable opinion. It is proper to give a reason for this, although it would suffice to say simply that Verneuil and his supporters have not adduced evidence sufficient to establish their views. We may go further, and say that the evidence they do adduce is not to be accepted at all. In the first place, it is not true that tetanus results most frequently from injuries received from horses, or in persons who are in habitual contact with horses. The injuries which may be followed by tetanus are of the most various kinds, and no one of them can be selected as fixing the nature of the malady. The style of reasoning adopted by Verneuil might in this country be applied to the toy-pistol, which about the Fourth of July creates such ravages among the children of certain cities of the United States. But to do this would be to repeat Verneuil's error of generalizing from too scanty premises. One of Verneuil's supporters, Dr. Blanc, of Bombay, illustrates the dangers of this method of reasoning by stretching it so as to cover cholera as well as tetanus, and spoils his argument by attempting to prove too much.

We cannot help comparing the loose theorizing of Verneuil with the carefully worked-out opinions of Rosenbach, presented to the Fifteenth Congress of German Surgeons, to which we have referred in THE MEDICAL NEWS, of August 7, 1886. These opinions were supported by reports of experiments which might be used to show that tetanus can be produced almost at will without the intervention of any equine influence whatever. We do not regard Rosenbach's theory as to the origin of tetanus as fully demonstrated, nor did he so regard it; but it is certainly far more probable than Verneuil's theory, and it is supported by a much better argument.

We call attention to this subject, because we have not yet seen any warning against the hasty acceptance of the theory of the equine origin of tetanus. We cannot say what the future may show, and it may not be amiss to take this theory into consideration, and to investigate its claims; but, as it now stands, it appears to us to be an example of very faulty reasoning, and to require very different confirmation from that which seems to have satisfied the Congress of French Surgeons.

THAT the endemic paraplegia, or Beri-beri, of Japan and of certain tropical countries has not yet

been described in this country, lends special interest to the communication of DR. SEGUIN on this subject at the meeting of the Neurological Society of Philadelphia. The researches of Scheube and others in Japan have shown that the disease is a multiple neuritis, probably of infectious origin. Dr. Seguin's cases came from Cuba, Brazil, and the Isthmus, in which regions it would appear to be of pretty recent occurrence. It is quite possible that the disease may appear in the Gulf States or in California, as it prevails extensively among the Chinese in the Sandwich Islands. The analogous indigenous cases reported by Dr. Seguin certainly resemble beri-beri in essential features, though it is doubtful if they are etiologically of the same nature.

THE Library of the College of Physicians contains 34,234 volumes, exclusive of duplicates, and 16,026 unbound pamphlets, an increase during the year of 2452 volumes and 2239 pamphlets; 325 current periodicals devoted to medicine and the collateral sciences are regularly received, of which 173 are published within the United States. With the single exception of the library of the Surgeon-General's Office, at Washington, the library of the College constitutes the largest and most valuable collection of medical books in the United States.

The principal medical libraries of the country are the following:

	Volumes.	Pamphlets.
Library of Surgeon-General's Office .	76,700	106,600
Library of College of Physicians of Philadelphia	34,234	16,026
Library of New York Academy of Medicine	20,000	12,000
Boston Medical Library . . .	16,374	13,364
Library of the New York Hospital .	15,860	
" Pennsylvania Hospital	15,000	

AT the annual meeting of the Board of Managers of the Utica State Lunatic Asylum, held last Tuesday, Dr. G. Adler Blumer was unanimously elected Superintendent, to fill the vacancy created by the death of Dr. John P. Gray.

Dr. Blumer is a native of Sunderland, England, and about thirty-seven years of age. He came to the United States when quite young, but returned to Europe to study in Great Britain, Germany, and France. He graduated in medicine at the University of Pennsylvania, in 1879. He was appointed fourth assistant physician in the Utica Asylum in June, 1880, and promoted to second assistant two years later, and became first assistant in 1884. He performed very acceptably the duties of Superintendent during the illness of Dr. Gray.

DIPHTHERIA is now prevalent in St. Paul, Minnesota, and at the request of the Board of Health of that city the Common Council has passed an ordinance requiring all physicians to report to the Department of Health all cases of membranous croup in the same way that they now report diphtheria, scarlet fever, and other contagious diseases. The Board inclines to a belief in the identity of so-called membranous croup with diphtheritic croup.

SOCIETY PROCEEDINGS.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, November 22, 1886.

THE VICE-PRESIDENT, CHARLES K. MILLS, M.D., IN THE CHAIR.

DR. E. C. SEGUIN, of New York, read by invitation

NOTES ON THREE CASES OF TROPICAL BERI-BERI, AND ON SOME SIMILAR AMERICAN CASES.

(See page 679.)

DR. CHARLES K. MILLS then made some remarks on

THE CONCURRENCE OF MULTIPLE NEURITIS WITH MYELITIS OR ENCEPHALITIS.

As one result of the interest which has been aroused in the subject of multiple neuritis, or polyneuritis, some cures have been effected which were before not considered possible; but it seemed to the speaker that, as in the case of other advances in medicine, some have been led to go too far in their conclusions, and have overlooked facts which are worthy of close attention. That multiple neuritis frequently occurs, can no longer be doubted; but that it occurs frequently as an absolutely isolated affection is, to say the least, doubful. His own experience was, that not infrequently either myelitis or encephalitis, or both, concur with this affection; that is, in not a few cases in which the diagnosis of multiple neuritis could be made by the strict rules applicable to the study of this affection—by a certain combination of motor and sensory symptoms, by their localization in distal parts of the limbs, and by tenderness of the nerve trunks, and of the muscles—positive evidences of the existence of the central disorders were also present.

If, as is generally believed, multiple neuritis is the result of a direct toxic influence on the nerve elements themselves, it was reasonable to suppose that this same influence would frequently be exercised upon the nerve elements of the brain and spinal cord.

Gowers, in his *Manual of Diseases of the Nervous System*, says, with reference to the cases of multiple neuritis which have been pathologically examined:

"The *spinal cord* has been found healthy in most cases. The ganglion cells, in some instances, have presented abnormal appearances, a vitreous appearance, or vacuolation, and this when the anterior nerve roots were not diseased. Now and then more considerable changes, usually those of chronic myelitis, have been found in the cord. They are probably merely coincident. Morbid appearances in other organs are common in the cases of alcoholic origin. The brain will present signs of chronic meningitis. The liver is frequently, and the kidneys are occasionally, found diseased."

Dr. Mills's conclusions were that we may have four classes of cases: 1. Cases of multiple neuritis, pure and

simple; such cases, however, were rare. 2. Cases in which the multiple neuritis was associated with myelitis. 3. Cases in which multiple neuritis was associated with encephalitis. 4. Cases in which multiple neuritis was associated with both myelitis and encephalitis. Instead of the association being just as is indicated by this classification, the combination might be of neuritis or perineuritis, with meningo-myelitis or meningo-encephalitis; or, finally, any modification of these combinations might be found.

Dr. Mills referred to a case which he had seen in consultation recently, in which the patient presented all the typical marks of multiple neuritis, the condition of her limbs being such as to call to mind the picture in Gowers's recent book of a case of multiple alcoholic neuritis, with palsy of extensors of wrist and flexors of ankle. This patient had also very positive evidences of cerebral involvement—mental confusion, with hallucinations and delusions both of sight and hearing. She had a clear history of abuse, not only of alcohol, but also of opium, chloral, and other narcotics. He believed that in this case there was a concurrence of multiple neuritis, with a similar pathological condition in the spinal cord and brain. He also referred to other cases, seen in consultation, and more particularly in the Philadelphia Hospital, where the majority of patients have been the victims of alcoholic excess—cases in which a confused picture of nerve, cord, and cerebral disease, probably inflammatory, was frequently presented. Cases of poisoning by lead, mercury, and particularly arsenic, were also discussed. Particular reference was made to the series of cases of poisoning by arsenic which he reported to the College of Physicians of Philadelphia in 1883.

A most interesting case, as bearing upon the views here presented, was one which he saw with Dr. O'Hara, of Philadelphia, to whom he was indebted for notes of the past history of the case, and also for suggestions as to the condition present at different stages. This patient, a professional man of originally good physique, and of remarkable intellectual attainments, had, eight years ago, an attack of rheumatism, which left him with a crippled heart, the damage to this organ, however, not seeming to have been of its valvular, but rather of its nervous structures. The patient was in the habit of using tobacco and alcohol, but not to excess, and sometimes did not use these agents at all for long periods. Two years after the first attack of rheumatism he began to have trouble with his vision. Sight in both eyes slowly failed until he scarcely had more than perception of light in both eyes. Careful ophthalmoscopic examinations were made with negative results; the media were clear, and no signs of retinitis or neuritis were discovered. In eighteen months he entirely recovered his sight from travel, rest, and the use, in the latter months, of strychnia hypodermatically injected. About a year after recovery of his sight he had another attack, rheumatic or rheumatoid gouty in character. In this attack he had insomnia and evidences of general nervous irritability. At this time the left upper extremity suffered from an undoubted attack of neuritis, affecting the most of the brachial nerves, but more markedly those of the median distribution.

About six months ago, he had what appeared to be an apoplectiform attack, his left side—face, arm, and leg—being temporarily paralyzed, but without unconsciousness. The attack passed off in a few hours.

About two months since he was engaged in work which called for both mental and physical effort, and considerable exposure. One day, when at a height of more than one hundred feet, he was suddenly stricken with incomplete paralysis of motion and sensation in the lower extremities, accompanied by great pain, but succeeded by his own efforts in getting again to the ground. This attack he attributed, probably correctly, to a stroke of air. On examination, he was found to have almost complete paralysis of the left leg from the knee downward, with blueness and coldness of the foot, and typical anæsthesia dolorosa as high as the ankle. He complained of excruciating pains, which he described as "jamming" in the sole of the foot. The right leg showed a similar condition, but much less marked, the paralysis of motion and sensation extending only half way to the knee, and not being nearly as complete as upon the other side. In two weeks, under the use of anodynes, local and general, with massage and weak currents of electricity, he recovered completely from these symptoms in his limbs. He then began again to use both head and limbs without rhyme or reason, and was attacked with loss of power and great pain, and perverted sensation in the right leg below the knee, with swelling of the dorsum of the foot and of the ankles. He also began to have lightning pains, here and there, in both lower extremities, and radiating from the spine upward, these being sometimes accompanied by retraction of the head. Still later he developed symptoms of cerebral excitement—total insomnia, refusal to take medicine, quasi-delusions, great loquacity, etc. He was without sleep for nine days and nights. Various remedies were vainly tried, but the first genuine relief which he obtained was from hypodermatic injections of morphia, repeated every twelve hours. This was followed by the administration of deodorized tincture of opium regularly every four hours, in doses of from ten to twenty minims, with twenty minims at bedtime. This treatment was continued, with digitalis, which he had been taking more or less for six or seven years, for about nine days. Mild alcoholic stimulus was also used, and nourishment was systematically administered. He has improved to such an extent that all the symptoms, neural, spinal, and cerebral, have greatly diminished, so that he is able to travel, but he cannot yet endure any great strain, either physical or mental.

DR. H. C. WOOD stated his belief that chronic multiple neuritis is one of the most frequent of the severe organic nerve diseases, and that in a large proportion of cases of serious nerve disease, the whole spinal axis and its accessories are affected. In general paralysis of the insane, four-fifths of the cases have some lateral or posterior spinal sclerosis, and a large proportion of these cases, no doubt, have multiple neuritis. He thinks that it is perfectly proven that locomotor ataxia may travel down the cord and produce peripheral neuritis, and that it is equally well proven that peripheral neuritis may travel upward, producing secondary lesions in the cord. With reference to electrical studies, it may be said that a large number of cases show that in the various forms of neuritis, every possible change in the electrical reactions can be found. Post-mortem examinations are sufficiently numerous to show that peripheral

neuritis is frequently not associated with other diseases, and that it frequently causes symptoms which simulate other affections. When we have peripheral neuritis, it is difficult to make out a spinal trouble back of it.

DR. OSLER thought that it was clear that we have the curious disease beri-beri in this country. It is probable that it exists in the Gulf States, as, a few months ago, he received some slides, which had been sent by a physician of Texas, and were said to contain the micro-organism of beri-beri. Anyone reading the descriptions of this disease must have been struck with the remarkable resemblance of some of the cases to acute ascending paralysis. His friend, Dr. Vineberg, now of New York, who formerly practised in the Sandwich Islands, gives a very accurate account of the suddenness of onset, the rapidity of the ascension of the paralysis, which, in some cases, ultimately involves the respiratory muscles, producing death in that way. He agreed with Dr. Wood that multiple neuritis must be an exceedingly common disease. The French journals of the current year contain a surprising amount of literature on the subject. He had been particularly interested in cases of neuritis occurring in connection with certain of the fevers. After typhoid fever it has been described a number of times, and also after phthisis. During the past year, he has had one interesting case of paralysis of the extensors of the left foot in connection with phthisis, unquestionably a case of neuritis. He suggested that possibly some of these cases of paræsthesia of the hands, with feelings of numbness and tingling, which Putnam has described so accurately, may be of the nature of a peripheral neuritis. A case recently presented itself at his service at the Infirmary for Nervous Diseases, in which these symptoms were very marked, and in which there apparently were some trophic changes. The skin was glossy, and the hands were somewhat swollen, and, indeed, they presented in a slight degree the appearances seen in myxœdema.

In connection with the diagnosis between acute ascending paralysis, anterior myelitis, and multiple neuritis, he would refer to an article by Francotte in the *Revue de Médecine*, to which attention was called in THE MEDICAL NEWS, of July 3, 1886. He reports four cases, two of which were studied anatomically, and in which the cord was found to be absolutely normal. In these two cases the clinical picture was that of Landry's ascending paralysis.

DR. SEGUIN said that he was much interested in the remarks of Dr. Mills as to the possible coëxistence of a central with a peripheral lesion. He had no doubt that this coëxistence is frequently a source of considerable difficulty in making up our minds whether a case is one of irregular poliomyelitis or of peripheral neuritis. It also seemed to him to be a matter of great practical importance as regards treatment that we should make up our mind whether we have a case of perineuritis or one of parenchymatous neuritis. The former disease, which is, he thinks, the more common, and perhaps present in some cases of so-called neuralgia, is essentially an inflammatory change in the connective tissue, perhaps penetrating into the interior of the nerve bundles, but not affecting the nutrition of the axis-cylinder or myelin and not capable of producing any distinct paralysis or atrophy. The diagnosis may be made clear by relying on this distinctive point, that in interstitial neuritis there must be anæsthesia, even if limited in area; and a true paralysis and atrophy, even if restricted to a few muscles. In perineuritis the symptoms are more diffused, milder, more subjective, and do not present a specific appearance. He thought that the true key-note had been struck in insisting on the importance of a careful study of the neural and muscular reactions. In true neuritis and interstitial neuritis, there must be degenerative reactions in some shape, distal from the point of disease, while in perineuritis and in some forms of myelitis the reactions are either irregular or simply a quantitative or nodal reduction.

The diagnosis is of great importance with respect to treatment. Perineuritis and meningitic conditions he treats with great energy with counter-irritation, with the actual cautery and blisters. Internally, he employs mostly tonic treatment and does not resort to mercury or iodide of potassium unless there is a special reason for their use. Rest is also an important element in the treatment of perineuritic conditions. In essential neuritis therapeutic measures can have but little effect, as we know that a natural repair takes place irrespective of artificial conditions. If we favor nutrition by our general remedies that is the most that we can do, although galvanism may serve to keep up a better nutrition in muscles pending nerve regeneration.

In regard to the relation between neuritis and beri-beri, he did not wish to be understood as stating positively that we have beri-beri among us, but he thought that it would not be out of place to call attention to the analogy between the symptoms of the two affections. He thought it well to have the attention of physicians in our Gulf States called to the features of the disease. As the disease has recently appeared in northern Brazil, it may appear in our Southern States.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, November 8, 1886.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

DR. GEORGE A. PETERS reported the following case of

INFLAMMATION OF THE SUBMUCOUS TISSUE OF THE GLANS AND PREPUCE.

Early in May, 1883, a gentleman, Mr. S., sixty-five years of age, presented himself with a condition of the penis to which Dr. Peters had never seen a parallel. For more than two years past he had complained of pain in that organ, and changes in structure had taken place which occasioned him much mental worry, and had made him decidedly hypochrondriacal.

On examination Dr. Peters found the glans and body of the penis, for about one inch from the end, hard and unyielding to the touch. The prepuce was very hard, inelastic, and embraced the glans so closely that it could not be drawn back sufficiently to expose it. The portion of the glans penis which could be exposed had the same hard feel, and was mottled with two or three small red, smooth spots, not ulcerated. Pain, although not severe, had been a constant symptom. There was also much itching and burning.

His general health had been considerably affected, but apparently more from mental agitation than from actual disease. The organ was not increased in size. There was no syphilitic or glandular taint. Fearing that if left unaided it might degenerate into epithelioma, he determined to amputate the penis, which was done May 9, 1883.

The operation was done about one-quarter of the distance behind the corona glandis with a circular sweep of the knife; the urethra was then dissected out, drawn forward, and stitched with fine suture to the skin, in order to prevent retraction. The wound healed very kindly, and he returned to his home in the country May 22d, thirteen days after the operation.

The specimen was handed to Dr. Frank Ferguson, pathologist, who reported that "the meatus is small, admitting only a No. 15 French sound, and the tissues around it are anæmic and of a peculiar transparent color. The urethra behind the meatus bears the normal relation to a penis of this size.

"The mucous membrane covering the glans and inner surface of the prepuce is normal. There is a zone of inflammatory products in the submucous tissue of the prepuce and glans throughout their entire extent, and although generally at a considerable distance from the surface (in the glans, along the periphery of the corpus cavernosum), in places there extend from the inflamatory zone limited areas which reach the mucous surface. This zone is composed of small round cells (young cells); in places accumulations of considerable size are seen, as in the formation of abscesses, but nowhere is seen any tendency to break-down.

"Some of the bloodvessels in the neighborhood of this zone of young cells are filled with similar small round cells, while the vessels which pass up through the diseased parts to the mucous membrane are empty. The vessels of the corpora cavernosa are generally distended with blood.

"*Diagnosis:* Inflammation of the submucous tissue of the glans penis and prepuce.

"*Note 1st.* The inflammation is extensive, its products found at the time of incision in the amputation.

"*2d.* There are no epithelial cells found in the glans or prepuce, beneath the mucous membrane, nor anything indicating carcinoma or sarcoma.

"*3d.* There has been general pressure on the vessels and nerves by the inflammatory products."

This case is unique in Dr. Peters's experience. Dr. Ferguson also states that it is the first of the kind which has been brought to his notice. The operation, Dr. Peters thinks, is justified by the fact that Mr. S. is now in good health, and there has been no extension of the disease. The relief to his mental condition would in itself sanction the operation.

Stated Meeting, November 22, 1886.

DR. STIMSON presented a case of

TUMOR OF BOTH SUPERIOR MAXILLÆ

in a girl thirteen years of age. The disease was first noticed three and a half years ago, as a small swelling in the front wall of the left antrum which increased slowly for two years, and then more rapidly during the last eighteen months. An operation for its removal was undertaken two years ago, but abandoned because the tumor appeared to be solid bone; the growth now involves the whole of the left side and all the right side, except the floor and margin of the orbit; the nose is deviated to the right, and the line of the incisor teeth is an inch and a half in advance of that of the lower jaw. The mouth is constantly held partially open because of the growth. This appears bony, hard to the touch, does not yield to pressure, and the concavity of the roof of the mouth has given place to a convexity, most marked on the left side; but few teeth are left in the upper jaw; there are some three superficial ulcers on the roof of the mouth, the mucous membrane in front is injected and deeper in color than usual. The tumor had been growing three years and a half. Dr. Stimson then invited a careful examination of the case, and an opinion as to the nature of the growth and the advisability of an operation.

DR. HUTCHISON said that the growth appeared to be a bony tumor, malignant in character; and it was questionable whether it could be removed completely without too great risk of death from hemorrhage; and if it was not wholly removed it would probably speedily return and prove fatal.

DR. SANDS rather thought that the tumor was a mixture of bone and other tissues, probably sarcomatous. He thought an operation would be hazardous, but the case without an operation would be fatal, and as the skin was not involved he should try to remove the growth.

DR. WYETH thought it was an osteo-sarcoma, but would risk an operation.

DR. BRIDDON was inclined to think it an enchondroma; he would not hesitate to recommend an operation as anything was better than her present condition.

DR. LANGE thought it might not be a very malignant tumor, but a mixed sarcoma; the case indicated an operation, and it was a very favorable one; the only danger being loss of blood, which might be great: but he thought that with proper precaution, including temporary ligature of the carotids, the removal of the jaw would not only be feasible but would give comparatively good results. He pointed out that the tumor did not seem to have as much tendency to grow inward to the base of the skull as it did to grow outward. He did not think there would be much difficulty in regard to the ethmoidal bones and posterior nares.

THE PRESIDENT thought it could be operated on with success; he advised a careful preliminary tracheotomy before the operation. He believed that, with a thorough plugging of the whole pharynx, pressure upon the carotids, without ligation, would be sufficient to control the hemorrhage.

DR. LANGE advised ligation of both carotids and securing the artery by pressing it over a rubber tube, which can easily be done by applying just so much pressure as entirely or partially to interrupt the current.

DR. SANDS recalled but one case in which the blood-current had been shut off in both common carotids simultaneously, and in that case fatal head symptoms supervened almost immediately. Whether they would occur in this case or not he could not say, but thought there would be a risk in performing such an operation; moreover, in his opinion, hemorrhage would not be controlled to any great extent by such a procedure.

He mentioned a case in which he had removed a portion of the lower jaw, and in which secondary hemorrhage took place from the internal carotid artery. A ligature was immediately applied to the common carotid, but there was no diminution of the bleeding, and it was only when a ligature was applied above the bleeding point that hemorrhage ceased. He would prefer, in Dr. Stimson's case, to trust to other means of avoiding undue loss of blood.

DR. WYETH did not think that the danger of immediate death from cerebral anæmia was so very great, there being a number of cases recorded in which the patient survived the deligation of both common carotid arteries, there being a varying interval between the application.

DR. LANGE thought that the ligation should be done cautiously, passing the ligature around the vessel without tying it; as it is drawn tighter gradually, the current can at any moment be diminished at will. This he considered a much safer method, and the risk of mischief is avoided which would probably occur in digital compression during such an operation.

DR. STIMSON thought it would dangerously prolong the operation to perform tracheotomy and tie both common carotids previous to the main operation.

DR. LANGE thought that the operation of tying the carotids would not occupy more than ten or fifteen minutes.

DR. STIMSON thought that it would require half an hour or more.

DR. LANGE suggested that it was not necessary to tie both simultaneously; only three days ago he was compelled to tie the common carotid for hemorrhage from the mouth and tongue. He asked the patient the moment he ligated the artery (this operation being done under cocaine), if he had any sensation of pain, vertigo, etc. He replied he had not. There was no noticeable disturbance of brain function.

DR. LANGE then presented a case of

NEPHROTOMY FOR PYONEPHROSIS,

with the following history:

Mrs. H., thirty-three years of age, married; had for years painful sensations in her lumbar region. Since about eight weeks ago she suffered from severe fluor albus, most likely of gonorrhœal origin, her husband being under treatment for gonorrhœa at that time, and now. For several weeks she had had cystitis, and within the last fourteen days, severe pain in the left lumbar region supervening. On the 11th of March he saw the patient in consultation with Dr. L. Straap. She was feverish, and suffered severe pain in her left lumbar region, where a tumor about the size of a new-born child's head could be felt, in all its relations corresponding to an enlarged kidney. Probatory puncture revealed the presence of pus. On the 13th of March, nephrotomy was done by lumbar incision, and the following condition found: There existed a large, pretty smooth cavity covered with a thin mucous membrane. At the bottom of this cavity a roundish, fleshy elevation could be felt and seen, apparently the main portion of the kidney. This was fluctuating, and on incision by the actual cautery, discharged a moderate quantity of pus. The finger, when introduced, felt the characteristic edges and cavities of the dilated calices. The larger cavity was apparently not in free communication with this main part of the pelvis. By its great extension it seemed to be crowded over and overlapping the organ entirely. At its depth, also, some protruding edges of calices could be felt. Both cavities were thoroughly drained, and a weak solution of boracic acic used as a wash during the after-treatment.

A great feature of the case was the even recovery which took place within eight weeks after the operation, when cicatrization was complete. The discharge of pus and urine through the wound decreased very rapidly, probably on account of the communication through the urethra being reëstablished. The urine, also, soon showed a much better condition, and was quite clear three months after the operation, containing only traces of albumen. The kidney could then be felt much reduced in size, though somewhat enlarged; the patient, now present, being in excellent health. He thought it probable that the woman may have had a hydronephrosis for a longer time, and that, in consequence of gonorrhœal infection, suppuration may have supervened.

DR. LANGE then reported the following case of

NEPHRECTOMY:

S. Frank, Russian, aged thirty-eight years; male; peddler by occupation, being seven years in the United States. He was first seen by him on October 2, 1886. He then had a cachectic appearance, and stated that in the summer of 1880 he had been taken with a severe dysentery, from which he suffered many months, and never fully regained health. For the last two years, steadily increasing discomfort, pain, and tenderness in the right hypochondrium, extending from the hepatic and renal regions downward toward the iliac fossa, has been felt, being more severe at night. Rigors and severe chills, followed by fever and perspiration, were of frequent occurrence; bowels irregular; urine rather abundant, was sometimes clear, and again would show a thick white sediment; a specimen examined the following day showed a large amount of pus and some cylindrical epithelia.

On examination, Dr. Lange found the man greatly reduced in flesh and strength, heart and lungs normal, abdomen slightly distended, walls resistant, so that palpation was difficult. In the right hypochondriac and lumbar region, on bimanual palpation, a tumor could be felt immediately below the liver, of about the size of two fists, the intestine being in front. There was no fluctuation, resistance being quite firm. Probatory puncture from the lumbar region gave a thick, odorless pus, at about the depth of two inches. Urine contained much pus; sp. g. 1.018, acid; containing slight amount of albumen. Microscopically, nothing but pus and a few flat epithelial cells, no cylindrical cells appear. The left lumbar region offered no abnormality.

Operation performed October 19th: nephrotomy, with eventual extirpation of the organ following. The pyonephrotic sac at its lower circumference was incised with a thermocautery, and a great quantity of thick pus escaped. On digital examination it was found that the whole swelling consisted of narrow pus cavities, mostly from a half to two inches in diameter; that it extended pretty high up below the diaphragm, and that for the economy of the body as a urine-secreting organ, it could

not possibly have any value. In view of the advanced degeneration, and the quality and quantity of the urine, the conclusion seemed justified that the opposite kidney must be comparatively healthy, while the pus must mainly be delivered from the right side. Though the adhesions of the capsule were quite extensive they were not very difficult to separate, and he succeeded, in spite of the size of the kidney, in bringing it before the lumbar incision without adding any cross incision, as he had to do in former cases. It was difficult to secure the pedicle, which was thick, short, and unyielding, and overlapped by the mass of the organ; finally, a preliminary elastic ligature was applied, the kidney being then cut away in front of the ligature; in this way a free access to the insertion of the ureter and other vessels was secured. A double ligature was then applied behind the previous one by means of Thierstro's spindles, the first ligature being then removed, and then by scissors and forceps the superfluous portions removed from the pedicle, and the actual cautery applied; and iodoform dusted over the wound. No sutures were applied, the wound being loosely packed with iodoform gauze.

Recovery took place without any serious disturbance, so that on November 14th, five weeks after the operation, he was discharged with a healthy granulating wound. The urine was loaded with pus during the first thirty-six hours, apparently this was pressed down into the bladder by manipulations during the operation, and on account of its thick consistency, was only gradually evacuated by the bladder. It then almost abruptly changed to a more normal condition in quality and other respects, and has remained almost normal. The most interesting feature in the after-treatment was the fact that the pedicle did not slough off, and the coarse silk ligatures did not come away spontaneously.

It is sometimes not easy in nephrotomy to find the exact boundary line between the tunica propria of the kidney and the hard fibroid layer, into which, after protracted inflammation and suppuration, the capsula adiposa is changed. He proposed to carry the incision with the thermocautery through all the layers deep into the tissues of the kidney, and on the edges of this incision to analyze exactly the above boundary line. He considered it very important not to carry the operative manipulations beyond this limit, as he had once met with a serious disappointment in neglecting this rule: the peritoneum was torn without his seeing it in time, and the patient died from septic peritonitis. Eventually the removal of a very old pyonephritic sac might be extremely difficult, and sometimes impossible, of which he had satisfied himself at the autopsy of a lady who had suffered from pyonephrotic calculous kidney for years, with perforation outward and into the colon; so that, finally, fecal matter was discharged through the lumbar region. Both kidneys were affected, and the patient finally died from tuberculosis of the lungs. In this case an absolutely fixed, enormously thickened, cicatricial sac, containing stones, was all that was left of the kidney; and its removal during the autopsy was attended with the greatest difficulty.

The specimen shows a thickened capsule, the tissues of the organ itself apparently entirely gone; the inner surface of the pus cavity is irregular, almost papillary; its form corresponding with that of the calices. Microscopical examination made by Dr. F. Heppenheimer showed that those trabecular prominences represented the remainder of kidney tissue in an advanced state of inflammatory and fatty degeneration, and that a thin epithelial layer covered their free surface, which seemed to justify the conclusion that the mucous membrane of the calices is not entirely gone.

MEDICO-CHIRURGICAL SOCIETY OF MONTREAL.

Stated Meeting, December 3, 1886.

THE PRESIDENT, JAMES C. CAMERON, M.D., IN THE CHAIR.

DR. SHEPHERD exhibited a

CASE OF LEPROSY.

occurring in a man aged nineteen, a native of Trinidad. He had a well-marked tubercular eruption on the face and hands, and a copious macular eruption on the legs and buttocks. The maculæ were of the size of ten cent pieces, of a bronzed color, and showed some infiltration. The fingers of both hands were crooked and swollen, and patient could not use them. The claw-like appearance of the hands was very marked. Large bullæ were seen on the hands and wrists, which when evacuated left troublesome ulcers. The patient's face was very characteristic of leprosy, the thickened tissues, dull expression, and tubercular nodules, also loss of eyebrows, and injected conjunctiva, gave the individual an appearance *sui generis*. There were also a number of anæsthetic patches, viz., on the inside of each thigh with atrophy of the skin on right elbow, and on dorsal surface of fingers and toes. The anæsthetic patches have only appeared within the last year. The right ulnar nerve could be easily felt and was slightly enlarged. The mucous membranes were not affected. The patient had been in this country four years and had been treated for syphilis; he came to Canada by the advice of physicians who thought his disease would improve in a colder climate. He was affected with the disease two years before he left Trinidad; the eruption was then principally on the chest, and disappeared with the use of chaulmoogra oil internally and externally. He said the disease is common in Trinidad, and exists chiefly among the Portugese. There was no history of leprosy in his family. Dr. Wyatt Johnston had excised one of the tubercles on the nose and had obtained from it the bacilli of leprosy in abundance, a beautiful preparation of which was shown.

In reply to a question of Dr. A. L. Smith's as to the contagiousness of leprosy, Dr. Shepherd said that there was great diversity of opinion both as to the contagiousness and the heredity of leprosy. This diversity of opinion was well shown in the reports from various leper stations throughout the world, lately published by the Government of the Sandwich Islands. Many think it hereditary in the second generation, others that children of leprous parents are predisposed to the disease. Although the general impression is that leprosy is hereditary, still there are no very strong proofs supporting this opinion. Dr. Shepherd thought that the disease was no doubt communicable by sexual intercourse, and could be inoculated like syphilis—but is not contagious in the common meaning of the term.

SUCCESSFUL OVARIOTOMY IN A PREGNANT PHTHISICAL WOMAN.

DR. WM. GARDNER reported the case of a lady who was the mother of two children, the youngest being ten years of age, and who had suffered for many years from cough, hemoptysis, and purulent expectoration. An ovarian tumor was diagnosticated five years previously by her family physician. When seen in March last, by Dr. Gardner, she was two months pregnant, and he decided that the best course was to remove the ovarian tumor, as she suffered much from nausea, vomiting, and orthopnœa. The operation was performed in the middle of May. The patient made a rapid recovery, and her breathing became easier, and cough and expectoration lessened. Since then she had been safely delivered of a fine healthy child, weighing over ten pounds. Dr. Gardner remarked that operative measures were much preferable and safer than the old treatment of tapping the tumor or bringing on premature labor.

DR. SHEPHERD related the following case of

SECONDARY SUTURE OF THE ULNAR NERVE, WITH RAPID RETURN OF SENSATION.

John D., æt. fifty, was cut with an axe over the left elbow, between the olecranon process and the internal condyle. The wound healed rapidly, but the patient afterward found that he could not use his arm and that there was considerable pain in the elbow. He entered the Montreal General Hospital under Dr. Shepherd, June 23, 1885, some ten weeks after the injury. At that time the left arm was semi-flexed and fixed; on attempting to straighten it great pain was complained of in the elbow. The muscles on the ulnar side of the forearm were wasted, and the little and ring fingers bent and useless. No sensation felt in parts affected by ulnar nerve. On examining the elbow a scar two inches long was seen stretching across the space between the olecranon and internal condyle; this cicatrix was excessively tender on pressure. The diagnosis of division of the ulnar nerve was made, and next day (June 24th) an operation was performed for the purpose of uniting the divided ends. An incision was made in the line of the ulnar nerve and across the scar, and the nerve was soon reached. The upper end was bulbous, and lower atrophied; both were embedded in scar tissue. The ends were separated by an interval of half an inch. After dissecting out the nerve the divided ends were "freshened" and brought together by a continuous suture of fine catgut, and the wound closed and dressed with dry antiseptic dressing. Next day the man had fairly good sensation in his little and ring finger, and a tingling feeling as if the nerve were asleep. The wound was first dressed on the sixth day and drainage tube removed; by July 8th the wound was firmly united and patient was sent home. Sensation, both general heat and tactile, was good, but motion was deficient. He was heard from in January, 1886, and at that time he had gone back to his work (lumbering), and said he was fast recovering the use of his arm, the only complaint he had was a slight burning pain over the little finger. Since then he has not been heard from.

Dr. Shepherd remarked that in these cases, in order to get a good result, the wound should unite by first intention, and the newly united nerve should not be subject to any tension. As long as the freshened ends were kept in accurate apposition it did not matter much what the material was; he also stated it was only necessary to pare off the ends of the nerves, it was not necessary to excise the nerve till healthy nerve tissue was reached. The interesting point in this case was the rapid return of sensation after suture. Surmay reports a somewhat similar case. Motion often takes some time before it returns, even after sensation has been fully established.

DR. RODDICK reported a case of

SUTURE OF THE SCIATIC NERVE

eighteen months after its division. The operation was followed by the gradual return of sensation and motion to the foot and rapid healing of two large and troublesome ulcers on the outer border of the foot. The operation was performed May, 1884. The age of patient was twenty-six. At present he could walk without a stick. The interesting feature in this case was the rapid healing of the ulcers after the union of the nerve, showing that the nerves of nutrition had first resumed their functions, although sensation and motion were still in abeyance.

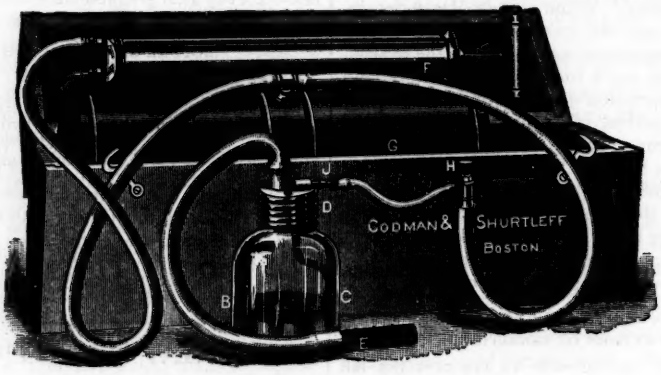
NEW INVENTIONS.

OLIVER'S ATOMIZER.

DEPENDING upon the principle that a stream of water forced through a narrow tube against a firm resistance will become broken by the concussion into a coarser or finer spray, which remains for a short time suspended in the atmosphere, Auphan, at Euzet-les-Bains, in 1849, and, subsequently, Sales-Girons, Demarquay, Mathieu, Lewin, and others, constructed inhalation chambers, or portable apparatus for the inhalation of nebulized liquids. The apparatus of Bergson, constructed in 1862, after a suggestion of Nothanson, produces a spray by the impact of a current of air with a stream of liquid drawn by its suction power into a tube placed perpendicularly to the air-tube, the fineness of the spray being regulated by the size of the apertures in the tubes. The apparatus described twenty years ago by Dr. Henry K. Oliver, of Boston, combines these principles; the spray from a Bergson nebulizer being made to impinge upon the wall of the vessel containing the tubes and liquid, and thus becoming reduced into a state of still more minute subdivision. In the improved Oliver apparatus, the spray from the Bergson tubes first strikes upon an overhanging projection from the air-tube, and is thence deflected across the diameter and upon the wall of the glass container, being thus twice broken up, each time into finer particles; the nebula thus formed being conducted to the mouth of the patient by means of a rubber tube and mouthpiece of sufficient aperture. A separate mouthpiece should be used for each patient. The air for propulsion may be conveniently supplied by means of hand-bulbs, or, for office use, be drawn from a reservoir in connection with an air-pump; a very neat and complete apparatus, which will be found extremely satisfactory, is made at a very moderate price by Messrs. Codman & Shurtleff (see figure).

The very fine cloud produced by this instrument, remains suspended in the atmosphere for fully a minute, and, according to the observation of Dr. George A. Evans, the admixture of glycerine with the solution to be nebulized prolongs the period of suspension. This

persistent nebula can be drawn by the patient with the current of inspired air a much greater distance into the air-passages than is possible with the ordinary sprays from the simple Bergson or Richardson tubes, even though, in the latter case, the patient inhale merely the more distant particles lightly suspended in the atmosphere.



Oliver nebulizer, with reservoir and air-pump.

B, glass jar. C, Bergan tubes attached to D, metal cap. E, mouthpiece of hard rubber. F, pump. G, reservoir tested to 100 pounds. H, spring cut-off. J, metallic attachment of air-tube.

It is a fact, not generally appreciated, that when the ordinary spray-tube is placed within the mouth, the stream of spray strikes the hard palate, pharynx, or other structures, being there in part deposited as larger or smaller globules, and in part transformed into a nebula, as in Oliver's apparatus. A small portion of the nebula is inhaled, but most of it is lost by exhalation, forming the dense cloud which is seen to issue from the mouth. Oliver's apparatus, forming outside of the body the nebula which alone can pass the glottis, allows a much larger proportion of the fluid nebulized to reach the interior and deeper structures. It also avoids many of the objections which hold against the steam atomizer, such as the relaxing effect of the steam upon the mucous membranes. If it be considered advisable to warm the nebula, the vessel containing the medicament may be placed within another vessel containing hot water. By combining one of these instruments with an apparatus for the administration of inhalations of compressed air (Waldenburg's, or some of its modifications), the conditions are obtained which most highly favor the penetration of the vapor (into which, practically, the very fine spray becomes converted) into the ultimate air-cells.

Inhalation of nebulized liquids may be advantageously employed in most cases of inflammatory affections of the air-passages, whether acute or chronic, not only to modify local conditions, but, in certain cases, to secure constitutional effects by absorption of the drug through the respiratory mucous membrane. The drugs most generally useful are those which may be classed under the heads of astringents, sedatives, sorbefacients, antiseptics, and agents which promote secretion or liquefy its products. In acute laryngitis and laryngo-tracheitis, compound tincture of benzoin will be found highly useful, and may be combined with preparations, preferably of watery solutions, of opium, belladonna, stramonium, conium, cocaine, or other sedatives, if pain be a prominent symptom. In more sluggish inflammations of the upper air-tract, terebene,[1] eucalyptol, oil of pine, oil of fir, and other balsamics may be employed, properly diluted, with the addition, as recommended, of some light oil, as olive oil or oil of almonds. Creasote, properly diluted, and infusion of tar, are appropriate in the more chronic cases. Astringents, such as solutions of tannin, vegetable extracts containing tannin, solutions of alum, zinc sulphate or sulphocarbolate, zinc acetate, and the like, may be used in appropriate cases; the strength of the solution being regulated by the comparative recentness or chronicity of the case, stronger solutions being best borne in the more recent cases.

Solutions of ammonium chloride, sodium chloride, potassium chloride, ammonium iodide, sodium iodide, potassium iodide, tincture of iodine, ammonium carbonate, potassium carbonate, turpentine, terebene, tar, wine of ipecac, oleoresin of cubeb, and, perhaps, mineral or vegetable astringents, when expectoration is unduly profuse; cherry-laurel water, tincture of cimicifuga, sodium bromide, ammonium bromide, or the sedatives previously mentioned, when cough is unduly troublesome, are among the agents more or less useful, singly or in combination, in cases of bronchitis, acute, subacute, and chronic, the comparative freedom of expectoration, and the character of the material expectorated, being the principal guides in the selection. In fetid bronchitis, chronic broncho-pneumonitis, the collateral bronchitis of phthisis, and, perhaps, pulmonary gangrene, the same drugs may be used, with the addition of eucalyptol, creasote or carbolic acid, thymol, ethyl iodide, mercuric chloride, sodium borate, boric acid, salicylic acid, potassium permanganate, Labarraque's solution, solution of sulphurous acid or of hyposulphites, solution of hydrogen dioxide, and, in certain cases, with proper precautions as to dose and dilution, Fowler's solution. To restrain hæmoptysis, resort may be had to turpentine, ergot, hamamelis, gallic acid, tannic acid, sodium chloride, alum, tincture of chloride of iron, or Monsel's solution, according to indications.

[1] Among the agents mentioned in various connections are a number of volatile substances, which may also be employed without any apparatus, or with so simple a contrivance as a saucer or a piece of sponge for an evaporating surface.

In tonsillitis or pharyngitis, whether simple or diphtheritic, coarse sprays are more generally useful; and in croup, for obvious reasons, the steam atomizer is to be preferred.

In cases of syphilis, where the iodides are not well borne by the stomach, ethyl iodide, or solution of iodine, or of its salts, may be employed by inhalation with a view to the production of constitutional effects; and in all cases where it is desirable to minimize efforts of swallowing, and hypodermatic medication is to be avoided for any reason, the appropriate drug may be exhibited in this manner, with proper precautions. Opium, belladonna, and aconite are examples of agents readily absorbed by the respiratory mucous membrane. As a rule, the solutions should be of alkaline reaction. Instruments with metallic tubes or with hard rubber tubes, are furnished by the manufacturers. Notwithstanding the fact that in both cases the nozzles are of platinum, such saline solutions as will reduce metal (*e. g.*, ammonium chloride, mercuric chloride) should be used only with the rubber tubes; while benzoin and other agents that will dissolve rubber, must be used only with the metallic tubes, until such time as glass tubes, the preferable ones in all cases, are supplied by the manufacturers.

NEWS ITEMS.

PROFESSIONAL SECRECY.—We learn from the *Union Médicale* that a case was lately tried before a French court in which the secrecy imposed upon medical men by the law was pleaded by a physician as his justification for refusing to certify to the nature and duration of the last illness of a man who had insured his life in the sum of 10,000 francs. The life insurance company demanded the certificate as one of the conditions on which it would pay over the amount to the estate, and it appears that the heirs, for their part, united in absolving the physician from the obligation of secrecy. But the doctor held that it was not within the legal power of any representative or heir of the deceased to dissolve the obligation; that, he contended, was a function vested in the sick person up to the time of death, and one that could not pass into other hands after his death. He held also that he was not at liberty to use his own discretion in the matter, but was absolutely bound to secrecy. He laid the question before his professional brethren at Havre, the town in which the case was tried, and they sustained him. Furthermore, the court affirmed the validity of the position taken. It was laid down that, admitting that a patient might, in certain cases, relieve his medical adviser of the obligation of secrecy, that power was absolutely personal, and could not be transmitted to the heirs; also, that the physician must be the sole judge as to whether or not, in any given case, he had been consulted under the seal of secrecy.

CONSUMPTION OF TOBACCO IN EUROPE.—M. Paul Leroy-Beaulieu, in an interesting paper in the *Economiste Française*, gives the following figures showing the quantity of tobacco consumed in the different countries of Europe. The rate per 1000 inhabitants is, according to him, as follows: Spain, 110 pounds; Italy, 128 pounds; Great Britain, 138 pounds; Russia, 182 pounds; Hungary, 207 pounds; France, 210 pounds; Denmark, 224 pounds; Norway, 229 pounds; Austria, 273 pounds; Germany, 336 pounds; Holland, 448 pounds, and Belgium, 560 pounds. In other words, while in Spain little more than one pound per head is consumed, nearly double that quantity is consumed in France, three times as much in Germany, four times as much in Holland, and five times as much in Belgium.

COMPARATIVE PATHOLOGY.—At a recent meeting of the Biological Society, M. Raphael Blanchard showed a lizard which had a papilloma, probably of acarian origin, on its back.

RIGHTS AND LEFTS.—Dr. Louis Jobert has published a work on the cause and frequency of left-handedness. No purely left-handed race has ever been discovered, although there seems to be a difference in different tribes. Seventy per cent. of the inhabitants of the Pendjab use the left hand by preference, and the greater number of the Hottentots and Bushmen of South Africa also use the left hand in preference to the right. Dr. Marro, as a result of his study of criminals, has found that from fourteen to twenty-two per cent. of those who have been convicted of crime were left-handed, the highest ratio among people of all classes being only nine in the hundred.

THE CONTAGIOUSNESS OF LEPROSY has for a long time been a mooted question. The Royal College of Physicians, in order to obtain the best information on this subject, sent inquiries to physicians throughout the world, whose practice had brought them in contact with the disease, and whose opinions would, therefore, be of value. Thirteen of these have no doubt of its contagiousness, and thirty-four entertain no doubt of its non-contagiousness. Twelve regarded leprosy and syphilis as being intimately related; twenty-one believed there was no relation. Most of those to whom the inquiries were sent regard leprosy as hereditary, and also that it may originate spontaneously under suitable conditions.

THE ODOR OF BRANDY.—M. Ordonneau has lately made some investigations concerning the cause of the peculiar odor of brandy made from wine. That of brandy prepared from other materials such as maize, beets, and potatoes, is characterized by what is known to French experts as the "odeur de trois-six," which is not present in wine brandy. This odor has been traced by M. Ordonneau to the presence of isobutylic alcohol. In genuine cognac brandy, the predominating flavor is due to the presence of normal butylic alcohol, which is present to the extent of 218.60 grammes per hectolitre. The production of this alcohol appears to be due to the presence of *Saccharomyces ellipsoideus* in the grape juice, since it can be developed from the ordinary refinery liquid by fermenting it with the sediment of wine. The isobutylic alcohol, on the other hand, appears to be a secondary product of the fermentation with beer yeast. It might, therefore, be possible in future to obtain brandy of good flavor by fermenting malt liquor with the *Saccharomyces ellipsoideus*. The other flavoring product to which brandy owes its peculiar bouquet, appears to be a terpene boiling at 178° C., the products of the oxidation of which characterize old brandy. The author gives an analysis of cognac brandy, from which it ap-

pears that amylic and normal propylic alcohol and acetic ether form the principal ingredients, besides ethylic alcohol, although propionic, butyric, caproic and œnanthic ethers, and pyridin, are present in minute quantities.

ANCIENT IRISH MEDICAL JURISPRUDENCE. — The Brehon Code of Laws, the most ancient in Europe, dating from the fifth century, deals largely with medical affairs. They refer to surgeons who lived before the second century. They carefully provide for distress—that is, taxation—for the support of the son taken from his dead mother's breast, for the incurable, for the care of the sick as to food, bedding, nursing, and a house with the wind blowing in all quarters and with a stream close by. The medical man had power to keep from the house "fools and female scolds." The mode of distraint in case of a physician was, "Let his horse-whip and his probes be taken up. If he has not the proper number of such things, let a thread be tied about the finger next his little finger." The unqualified physician was to be fined if he operated without giving a guarantee against damages, or without giving notice that he was not qualified. The practitioner was to be quite exempt. An impartial physician was to be the judge of the mode of treatment and of the due recompense. The fees, always paid with oxen, the current coin, were most exactly proportioned to the rank of the patient. Cattle abounded, and as late as 1369 the value of a cow was only 3s. 4d.—DR. MAPOTHER, *in the Dublin Journal of Medical Science.*

SLEEPING IN THE WOODS.—In one of the German health-resorts, the *Allgemeine medicinische Central-Zeitung* states, the experiment was tried this summer of having the patients with pulmonary disorders sleep all night in the open air in the pine woods. The hammocks, used to rest in during the day, were provided with pillows and bed-clothing, and a party of five, two ladies and three gentlemen, spent their nights in the woods with no roof over their heads. The experiment was very successful, the patients slept better than they had been able to do in their rooms, and all declared themselves as feeling much more refreshed by their sleep than usual. It is proposed next summer to provide accommodation for a larger number of patients in the forest, so that the experiment may be tried on a large scale.

IODOFORM PREPARATIONS.—The dark color which iodoform salves and other solutions assume is said by Hebeler to depend on the presence of free iodine, and takes place the more quickly the more the preparations are exposed to the light. Solutions should, therefore, be kept in dark bottles, and ointments, especially those with a petroleum basis, be kept covered from the light.

CARLYLE ON THE MEDICAL PROFESSION.—In a letter written to Dr. Hutchinson Stirling in 1842, and but recently published, Carlyle said of the medical calling: "What profession is there equal in true nobleness to medicine? He that can abolish pain, relieve his fellow-mortal from sickness, he is indisputably usefullest of all men. Him savage and civilized will honor. He is in the right, be in the wrong who may. As a lord chancellor, under one's horse-hair wig, there might be misgivings; still more, perhaps, as a lord primate, under one's cauliflower; but if I could heal diseases I should say to all men and angels, without fear, 'En! ecce!'" Carlyle also gives some good advice on the subject of writing *versus* working. He counsels his correspondent, Dr. Stirling, then a young man, to "learn the indispensable significance of hard, stern, long-continued labor," and of silence. "Be in no haste to speak yourself," he says. "Why be *porous*—incontinent? Nothing can foment itself to clearness in a *colander*." Avoid literature, he continues, which, as a trade, is the "frightfullest, fatalest, and too generally despicablest of all trades now followed under the sun."

FATAL MISTAKE IN A POLICE LAZARET.—In a lazaret attached to a Moscow police-station an attendant recently administered by mistake a tablespoonful of a strong solution of carbolic acid to four patients, who at once complained of a burning sensation in the throat, and soon presented all the symptoms of carbolic acid poisoning. The surgeon managed to save all except one of the victims, who died next day.

PENNSYLVANIA HOSPITAL.—The second annual meeting of the Association of Ex-resident Physicians of the Pennsylvania Hospital was held in the library of the hospital, on Thursday evening, December 16, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 7 TO DECEMBER 13, 1886.

POPE, B. F., *Major and Surgeon.*—Relieved from duty in the office of the Surgeon-General of the Army, and will report in person to the President of the Army Medical Examining Board in New York City for duty as member and recorder of the Board. *S. O. 285, A. G. O.*, Dec. 9, 1886.

AINSWORTH, FRED. C., *Captain and Assistant Surgeon.*—Relieved from duty as Recorder of the Army Medical Examining Board, New York City, and ordered to report in person to the Surgeon-General of the Army for duty in his office.—*S. O. 282, A. G. O.*, Dec. 6, 1886.

TURRILL, H. S., *Captain and Assistant Surgeon.*—Ordered for duty as Post Surgeon at Fort Spokane, Washington Territory.—*S. O. 209, Department of Columbia*, Nov. 29, 1886.

BARROWS, CHARLES C., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for two months, to take effect when his services can be spared by his Post Commander.—*S. O. 285, A. G. O.*, Dec. 9, 1886.

WILSON, GEORGE F., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for one month, with permission to apply to headquarters, Department of the Missouri, for an extension of twenty days, to take effect about December 15.—*S. O. 125, Department of Dakota*, Dec. 1, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING DECEMBER 11, 1886.

PERCY, H. P., *Passed Assistant Surgeon U. S. N.*—Ordered to Naval Academy at Annapolis, Md.

NORFLEET, ERNEST, *Passed Assistant Surgeon U. S. N.*—Granted three months' sick leave.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

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